

THE UNIVERSITY OF QUEENSLAND

LIBRARY

The persons whose signatures appear below have consulted this thesis  
by *Bradley M. Johnson* . . . . . and are aware that  
it is available for study only and that no quotations, or substantive information



AN EVALUATION OF A PSYCHIATRIC SERVICE  
TO RURAL AREAS OF SOUTH-WEST QUEENSLAND

AN EVALUATION OF A PSYCHIATRIC SERVICE  
TO RURAL AREAS OF SOUTH-WEST QUEENSLAND

Bradley M. Johnston

Department of Psychology  
University of Queensland

Submitted as a requirement of admission to the  
degree of Master of Arts

1992

ABSTRACT

A psychiatric service was developed to provide mental health care to the underserved population of south-west Queensland. Traditional models of service delivery were found to be unsuitable in these rural areas of outback Australia. The unique environment created barriers like vast distances, scattered population and economic constraints which precluded the use of permanent facilities in the rural communities. A travelling multidisciplinary team model was adopted. Emphasis was placed on consultative services, continuity of care, education and support for local health workers.

Census-based community profiles were obtained for six rural communities. Key informant needs surveys were carried out in four of these regions. Needs expressed in the surveys plus positive attitudes toward a new psychiatric service, led to the establishment of regular outpatient clinics in the six towns over a four year period.

Comprehensive data on the operation of the service was collected for five years. During this time, 762 new patients were assessed and there were 2668 patient contacts. The most common patient profile was of a married, female with a diagnosis of Anxiety Disorder. Patients were treated for an average of



three visits, over a two month period. Most patients were referred to the clinics by local medical personnel.

Patients' attitudes toward the service were assessed following discharge. Results of a mailed survey showed that patients rated the service as being helpful in the resolution of their problems. Health care workers in the rural areas were assessed using a structured interview. They rated the service as effective in providing care but as having little impact on the community in general.

Examination of the impact of the service on a nearby psychiatric hospital produced unexpected results. The number of admissions to the hospital did not alter with the creation of the new service. However the severity of disorders admitted, and the duration of stay increased over the period of study.

The new model of service delivery was assessed as achieving its goal of improving rural residents' access to psychiatric care. Implication of the study for future programs and research are discussed.

## ACKNOWLEDGEMENTS

I wish to thank a number of people who gave invaluable assistance with this thesis. Firstly, my sincere thanks go to Arlene Morgan who introduced me to the idea and importance of Community Psychology, and who provided many, many hours of patient and compassionate supervision. Thanks to Linda Schoen and Boris Crassini for their useful comments and guidance on the research design. Dale Caird is also thanked for his assistance with the statistical treatment of the data.

I would like to thank my former colleagues and mentors at Baillie Henderson Hospital for giving their valuable time, and invaluable assistance, in the collection and understanding of the data. As well, they are thanked for their support of my efforts.

Finally, and most importantly, thanks to my darling wife for her unflagging support and encouragement during the good times and bad.

The work presented in this thesis is, to the best of my knowledge and belief, original except as acknowledged in the text. I hereby declare that I have not submitted this material either in whole or in part, for a degree at this, or any other institution.

A paper, based on information from this research, has been submitted for publication to The Journal of Hospital and Community Psychiatry.

*Bradley M. Johnston*

## TABLE OF CONTENTS

	<u>Page</u>
List of Figures	(xi)
List of Tables	(xii)
Introduction	1

## SECTION A : SELECTION OF AN EVALUATION METHODOLOGY

<u>Chapter 1 : Model of Evaluation</u>	10
History of Evaluation	10
Evaluation Models	14
The CIPP Evaluation Model	17
A Value Free Model	29
A Utilization Focussed Evaluation Model	30
Evaluation of the Current Study	32

## SECTION B : THE CREATION OF THE SERVICE

<u>Chapter 2 : The Rural Setting</u>	36
Statistical Definition	36
Sociological Definition	38
Health	40
Economic Status	41
Transportation	43
Psychiatric Epidemiology	44
Factors Affecting Psychiatric Service Delivery to Rural Areas	48
Urban Bias	49

	<u>Page</u>
Access	51
Limited Resources	51
Attitudes Toward Mental Illness	52
Visibility	53
Personnel and Training Problems	55
Sense of community	57
Summary	58
 <u>Chapter 3 : Rural Mental Health Service Models</u>	 60
Independent Travelling Clinics	61
Hospital-Based Travelling Services	64
Satellite Centres	65
Community Mental Health Centres	67
Summary	69
 <u>Chapter 4 : Rural Mental Health Services in Australia</u>	 71
Characteristics of Rural Australia	71
Mental Health in Rural Australia	73
Unique Features of Mental Health Service Delivery	75
Summary	77
 <u>Chapter 5 : The Creation and Goals of the Service</u>	 79
Creation of the Service	79
Goals	81
 <u>Chapter 6 : Needs Assessment</u>	 83
Introduction	

	<u>Page</u>
Social Indicators Approach	88
Geographical Area	89
Population	90
Population Centres	93
Summary	100
Key Informant    Needs Surveys	100
Method	100
Results	103
Discussion	
Summary	114
SECTION C : IMPLEMENTATION OF THE SERVICE	
<u>Chapter 7 : Operation of the Service</u>	116
Outpatient Clinics	117
Consultation Service	118
Education Service	119
Rationale of the Research Questions	119
<u>Chapter 8 : Utilization of the Service</u>	123
Introduction	123
Method	129
Results	131
Discussion	155
<u>Chapter 9 : Client Satisfaction</u>	175
Introduction	175

	<u>Page</u>
Method	177
Results	178
Discussion	182
 <u>Chapter 10 : Impact on the Rural Communities</u>	 185
Introduction	185
Method	187
Results	189
Discussion	195
 <u>Chapter 11 : Impact on Baillie Henderson Hospital</u>	 201
Introduction	201
Method	204
Results	204
Discussion	211
 SECTION D : EVALUATION OF THE SERVICE	
 <u>Chapter 12 : Summary and Discussion</u>	 216
Unique Features of the New Service	217
Travelling Service	218
Use of a Multidisciplinary Team	219
Fit and Usefulness of the Evaluation Model	221
Achievement of Prescribed Goals	226
Recommendation for Future Services	234
Areas of Future Research	238

Page

References		240
Appendix A	Needs survey sheets.	256
B	Intake Record Sheet.	260
C	Discharge Summary Sheet.	262
D	Client satisfaction questionnaire	264
E	Caregiver structured interview form	266
F	Statistical analyses	269



LIST OF FIGURES

	<u>Page</u>
Figure 1. Georgraphic Area Serviced by Darling Downs and South-West Queensland Regional Psychiatric Service	5
Figure 2. Model of Decision Making Settings	19
Figure 3. Types of Decisions and Evaluation Phases	22
Figure 4. Flow Diagram of The Relation of Evaluation to Decision Making	24
Figure 5. Plot of group centroids of discharge variables and towns	145
Figure 6. Plot of group centroids of discharge variables and diagnostic groups	148
Figure 7. Plot of group centroids of discharge variables and treatment outcome	151
Figure 8. Plot of group centroids of diagnostic groupings on patient satisfaction ratings	181
Figure 9. Plot of group centroids of caregiver ratings and towns	193

LIST OF TABLES

	<u>Page</u>
Table 1. Needs Survey Distribution and Return Rates from Four Towns	105
Table 2. Number of Problems Recorded and Expected Referral Rates from Needs Surveys in Four Towns	106
Table 3. Ranked Order of the Most Frequent Problems Recorded in Needs Survey	107
Table 4. New Patients and Total Contacts at Rural Clinics (1980-1984)	132
Table 5. Age and Sex of New Patients Seen at Clinics (1980-1984)	134
Table 6. Marital Status and Sex of New Patients Seen at Clinics (1980-1984)	135
Table 7. Occupational Status and Sex of New Patients (1980-1984)	136
Table 8. Diagnostic Groupings of New Patients (1980-1984)	138
Table 10. Referral Sources in Each Rural Town	139
Table 11. Comparison of Problems Recorded in Needs Survey with Actual Referral Rates	140
Table 12. Service Characteristics of Discharged Patients (1980-1984)	142
Table 13. Discriminant Analysis of Discharge Variables and Town	144
Table 14. Discriminant Analysis of Discharge Variables and Diagnosis	146
Table 15. Discriminant Analysis of Discharge Variables and Treatment Outcome	150
Table 16. Multiple Regression of Four Discharge Variables on Distance from Toowoomba	154
Table 17. Mean Responses to Client Satisfaction Questionnaire	178

	<u>Page</u>
Table 18. Discriminant Analysis of Patient Satisfaction Ratings and Diagnosis	179
Table 19. Caregiver Responses to Evaluation Survey	191
Table 20. Discriminant Analysis of Caregiver Variables and Town	192
Table 21. Multiple Regression of Eight Caregiver Variables on the Number of People per Service	194
Table 22. Admissions to Baillie Henderson Hospital from the Rural Catchment Area (1978-1984)	205
Table 23. Age of Admissions to Baillie Henderson Hospital from Rural Areas (1.7.80 - 31.12.84)	207
Table 24. Diagnosis of Admissions to Baillie Henderson Hospital from Rural Areas (1.7.80 - 31.12.84)	209
Table 25. Average Length of Stay in Baillie Henderson Hospital (1970-1984) in Weeks	210

## INTRODUCTION

Dramatic changes in the care available to the mentally ill have occurred over the past several decades. As the mental health profession came of age, therapeutic techniques evolved to alleviate symptoms and promote behaviour change. The refinement of psychotropic medication enabled many of the psychiatrically disturbed to remain comfortably in their own communities with minimal supervision. Mental health services flourished and treatment centres appeared in great numbers as help was offered - and sought - for the gamut of human "problems in living."

From the beginning, however, mental health professionals recognized a serious imbalance in service provision. The people receiving help were those who lived near the hospitals and clinics, with only limited facilities available elsewhere. Mental health services continued to expand, but despite the increasing numbers of psychiatric facilities, few services extended far enough to reach the rural population.

A significant development occurred in the 1960's. The Community Mental Health movement, while not arising directly from a concern for availability of services, provided further impetus to the extension of mental health facilities. According to Rappaport (1977), the



concept of Community Mental Health emerged in response to a growing dissatisfaction with the outcomes of treatment in large mental institutions. The most notable changes occurred in the United States where the push for deinstitutionalisation began with the recommendations of the Joint Commission on Mental Health and Illness (1961). These led to U.S. government legislation calling for the construction of community mental health centres servicing specified geographic areas with "comprehensive care". The principle of the centres was to be the early detection and treatment of mental illness using local resources, and the avoidance of the build-up of chronic patients residing in large state institutions.

The Community Mental Health philosophy paralleled that of Community Psychology, whose emerging leaders were calling for community-based treatment, early intervention and prevention strategies, and an emphasis on environmental factors in the etiology of psychiatric problems (Hobbs, 1964; Rappaport, 1977). A community treatment milieu was seen as more effective, more humane and - perhaps most importantly - less costly to the taxpayer (Bachrach, 1977; Ozarin, 1983).

Attitudes toward mental illness were also changing, and the emphasis swung from that of viewing all behavioural aberrations as a form of illness, to one of maladjustment to the environment (Bates, 1977; Flax, Wagenfeld, Ivens & Weiss, 1979). Thus it was seen as

as preferable to treat disturbed behaviour within the "natural" environment.

The Community Mental Health movement reflected the fundamental changes in both public and professional policies regarding mental illness. These changes were seen as desirable and the momentum of the movement grew. By 1983, there were an estimated 800 federally funded community mental health centres in the United States, and deinstitutionalisation was well established.

However, it is not surprising that the community mental health centres, like the large hospitals themselves, tended to locate in urban areas (Bachrach, 1977). This trend served to highlight the already unequal distribution of services within communities. With the push for community based services increasing, the shortcomings of facilities for rural areas became more noticeable (Flax et al., 1979).

Historically the needs of rural populations have always been neglected. There is a tendency to see urban areas as the locus of the vast majority of social ills (Armstrong, 1977; Yahraes, Barron, Camp & Fussell, 1979), yet accumulated evidence suggests rural dwellers experience equivalent numbers of health and social problems and suffer at least an equal prevalence of psychiatric disorders (Flax et al., 1979; Hoagland, 1978).

The very nature of a rural area presents serious obstacles to efficient service provision. The two most obvious features are also the least alterable - the typically sparse populations and the frequently large geographical distances between population centres. Nowhere have these difficulties been more apparent than in Australia, where the isolation of rural residents from urban centres is greater than any other country in the Western world.

The present study describes a service designed to provide mental health care to such an area. Queensland, Australia's second largest state, is characterised by vast, sparsely populated rural areas. The region under study consists of most of southern Queensland, excluding the heavily populated coastal plain (See Figure I). It is 411,012 sq kms (158,650 sq miles) in size, which represents an area twice the size of the Australian state of Victoria, or slightly larger than the U.S. state of California. People living in this region are required to travel up to 1200 kilometres to the nearest facilities for psychiatric care.

In 1980 the Queensland government authorised the provision of services direct to these rural areas. Baillie Henderson hospital, a 500 bed psychiatric facility in Toowoomba, was assigned the responsibility for servicing the areas described. A pilot service to Dalby, a major provincial town 80 kilometres west of



Figure 1. Geographic Area Serviced by Darling Downs and South-West Queensland Regional Psychiatric Service.



Toowoomba, was begun that same year with a multi-disciplinary team dispatched from Baillie Henderson on a one-day-a-fortnight basis.

In 1982 a permanent, full-time multidisciplinary team was established and instructed to implement an effective psychiatric service to the remainder of the catchment area. The present author was the psychologist on that team and, in addition to the regular duties of clinical service delivery, assumed responsibility for the design and implementation of program evaluation. Program evaluation was sought to assess the efficacy and impact of the new model of mental health care in a unique and unresearched environment. This thesis will report on the resultant evaluation of service delivery to isolated rural areas. It will be presented in four sections.

#### Section A : Selection of an evaluation methodology

Chapter 1 will review models of evaluation deemed relevant to the present study. A composite model will be generated providing an operational framework. The evaluation plan will be outlined.

#### Section B : The creation of the service

This phase of the study involved four stages. Chapter 2 will examine the criteria used to classify a

population as rural and evaluate the relevant differences between rural and urban communities. Chapter 3 reports on a search of the literature for appropriate models of mental health service delivery used effectively in other rural areas. Chapter 4, following on from critical factors identified in Chapters 1 and 2, compares the Australian rural environment with rural areas elsewhere in the world. Chapter 5 will trace the creation of the service and discuss the goals of operation. Chapter 6 will review the research on the most appropriate means of assessing community needs, and stemming from this will be needs analyses in provincial centres that the service would visit.

#### Section C : Implementation of the service

Chapter 7 will describe the structure and operation of the service, as well as the methodology employed in collecting the data. The data collection will be targeted toward four basic research questions:

1. The degree and type of utilization of the new service by the rural communities.  
Improved access to care will be looked at as a major service goal.
2. Satisfaction of the consumers.
3. Impact on the rural communities.
4. Impact on the nearest psychiatric facility - Baillie Henderson Hospital.

Each of these research questions will be dealt with as a separate study in Chapters 8, 9, 10 and 11 respectively.

#### Section D : Evaluation of the service

Chapter 12 will combine the results of the four studies to examine the degree to which the new service achieved its prescribed goals. The efficacy of the composite evaluation framework will be discussed, as will research shortcomings and directions for future studies.

SECTION A

SELECTION OF AN EVALUATION  
METHODOLOGY

## CHAPTER 1

### MODEL OF EVALUATION

"Evaluation is the determination of the worth of a thing"

(Worthen & Sanders, 1973, p.19)

Evaluation as a science and a research tool grew from the demand for accountability of service programs to funding agencies. A mushrooming literature base combined with a wealth of evaluation techniques and technicians has stamped the field as a discipline in its own right. The extensive literature base will not be reviewed here. Rather, this chapter will (a) briefly trace the growth of evaluation as a science, (b) examine the concomitant development of models of evaluation, and (c) describe two evaluation models in depth and discuss the rationale for blending them into a new model to provide a framework for the presentation of the current research.

#### History of Evaluation

The history of formal evaluation is much longer than is generally believed. The idea of evaluation programs and individual performances was evident as early as 2000 B.C. when Chinese officials were conducting civil service examinations (Du Bois, 1970).

In the United States, the first evidence of



program evaluation is credited to Joseph Rice for his study of spelling performance of school children in 1897 (Worthen & Sanders, 1973). Worthen and Sanders postulate it was this study that led to Robert Thorndike lobbying educators on the value of measuring human change, and causing the measurement technology for assessing human abilities to flourish in the early decades of this century.

Educational evaluation continued to dominate the field for the next six decades, and it was not until the 1960's and 70's that human service programs were assessed with the same degree of scientific rigour. This change occurred as a result of the massive United States federal expenditure on programs aimed at the improvement of the physical and mental health of the underprivileged. Public accountability and formal evaluation requirements had begun to emerge as critical factors in funding allocation (Madaus, Stufflebeam & Scriven, 1983).

Thus the growth of evaluation research was the political response to calls for increased government accountability in social experimentation. Program planners realised that there was insufficient money to do all that was required, and were forced to develop ways of assessing the relative worth of various programs in order to allocate funds most appropriately. Evaluation began to emerge as a scientific discipline, yet despite the large

numbers of evaluators, research in some areas remained scarce.

Educational evaluation flourished (Flanagan et al., 1964; Worthen & Sanders, 1973), but in comparison, evaluation of mental health services and programs was, until quite recently, noticeably lacking. Spielberger, Pincente and Hobfoll (1976) postulated four reasons why psychologists have not concerned themselves with the evaluation of mental health services, namely :

1. Psychologists working in mental health fields and community settings are so committed with work requirements that there is insufficient time available for evaluation research.
2. Many mental health professionals are too threatened by the idea of evaluation, fearing it may highlight personal inadequacies.
3. Many psychologists place great value on laboratory, experimental research and tend to derogate applied evaluations.
4. Perhaps most importantly, evaluation research is extremely difficult because the objectives of mental health programs are rarely explicit, and the conceptual and methodological requirements are so complex.

Despite these factors, evaluation has become an integral part of community health programs in the United States. This has been attributed to government

legislation forcing programs' directors to formally evaluate their work (Hagedorn, Beck, Neubert & Werlin, 1979). Public Law 94-63, the Community Mental Health Centres Amendments of 1975 (cited in Hagedorn et al., 1979), requires community mental health centres to conduct program evaluation in a formal way. The legislation stipulates that the Centres allocate at least two percent of their budget to the conducting of program evaluations along three guidelines, that is (a) quality assurance of clinical services, (b) self evaluation, and (c) residents' review.

Thus, evaluation research has evolved from its humble beginnings to its present struggle for recognition and scientific rigour. It has grown from a need for funded programs to be accountable and to provide evidence of their effectiveness. Most of the work in the field has stemmed from education researchers, but recent government pressure has forced mental health workers to also incorporate evaluation into their ethos. The reluctance of mental health workers to evaluate their programs has been evident, and blamed on time constraints and the difficulties of performing applied research.

The development of models for evaluation research has paralleled the growth of the field in particular, and the progress of psychological methodology in general.



The development of evaluation models will now be discussed, and the models used in the present study will be described.

### Evaluation Models

In the 1930's, evaluation was seen as part of the science of measurement - objective, reliable and yielding data which were statistically manipulable (Thorndike & Hagan, 1961). Although the establishment of norms and standards was facilitated, these models were criticised for being too dependent upon objective, scorable criteria and frequently losing the flavour of the overall program (Ebel, 1965). Another difficulty, perhaps more important, was that variables which did not lend themselves readily to cost-effective measurement were often eliminated or ignored (Jemelka & Borich, 1979).

Tyler (1950) proposed a broader definition of evaluation which involved assessing the degree of congruence between performance on a program and the program's objective. The objectives were usually defined in behavioural terms. Although being more adaptable than previous models, the concept was still seen as having the shortcoming of requiring objective, scorable criteria. This often prevented or obscured the attainment of more abstract goals (Jemelka & Borich, 1979).

The difficulties of trying to use classical research methodology in applied settings were becoming quite obvious (Stufflebeam et al., 1971; Worthen & Sanders, 1973). In emphasising this point, Guba and Stufflebeam (1968) wrote "On the surface, the application of experimental design to evaluation problems seems reasonable, since traditionally both experimental research and evaluation have been used to test hypotheses about the effects of treatment. However there are ... distinct problems with this reasoning" (p.14).

Guba and Stufflebeam identified four aspects of conventional experimental design which made it less applicable to evaluation studies, namely :

1. The necessity for treatment and control conditions to be held constant for the duration of the experiment.
2. Experimental studies are only useful for making decisions after the project has run full cycle.
3. The requirement to control or eliminate confounding variables and produce a "pure" effect.
4. The achievement of internal validity, by control of extraneous variables, is usually at the expense of external validity.

They argued that these features of experimental design precluded its use or weakened its effectiveness in the complex and largely uncontrollable world of applied research.

These criticisms were disputed on technical grounds (Anderson, 1969; Scriven, 1967; Worthen & Sanders, 1973), but the flavour of Guba and Stufflebeam's argument remained a valid indication of the impreciseness of evaluation methodology. In recognition of these criticisms, evaluators have sought to provide a firmer basis for evaluative theory and in doing so have offered new conceptualisations for evaluation.

Clark (1976) called those approaches action research, and described them as both a means to make scientific discoveries and to solve practical problems. Action research attempts to combine discovery with implementation in a single process. By accepting a relaxation of methodological rigour, meaningful data can be gathered and analysed in areas previously precluded from scientific research because of the number of confounding variables.

One model used for action research is the CIPP (Context, Input, Process, Product) model proposed by Stufflebeam and his colleagues (Stufflebeam, 1973, 1983;



Stufflebeam et al., 1971). This model was chosen for the present study for its adaptability and focus on the importance of decision-making in the evaluation process. It will now be discussed in greater detail.

#### The CIPP Evaluation Model

As previously stated, Stufflebeam's model of evaluation arose from the need to impose scientific structure on complex and changeable practical problems. His approach was to focus on obtaining information which could be used to make relevant decisions about educational programs. The stringent requirements of research definitions were relaxed to create this decision oriented model of evaluation.

Evaluation is defined as the "process of delineating, obtaining and providing useful information for judging decision alternatives (Stufflebeam et al., 1971, p.40). Stufflebeam emphasised four key points about the model which stemmed from his definition :

1. Evaluation is performed with the goal of accurate decision making and should focus on the provision of information useful to decision makers.
2. Evaluation is a cyclic and continuing process and therefore must be implemented in a systematic and regular way.
3. The evaluation process involves the steps of delineating, obtaining and providing useful information.

4. The delineating and providing steps are interface activities requiring collaboration between the evaluator and decision maker, whilst the obtaining step is a technical activity within the province of the evaluator.

Crucial to the model is the importance of decision making, and Stufflebeam has identified four types of settings within which decisions are made. These settings can be arranged about the intersection of two continua: (a) the degree of change, and (a) the amount of information grasp necessary to support change. Combining the axes produces the four decision making settings illustrated in Figure 2. These settings are :

1. Decisions to effect large changes supported by a high level of information grasp - Metamorphism.
2. Decisions to effect small changes supported by a high level of relevant information grasp - Homeostasis.
3. Decisions to effect small changes with a low information grasp - Incrementalism.
4. Decisions to effect large changes with only a low information grasp - Neomobilism.

Metamorphic decision making denotes a utopian activity designed to produce complete change in the context of total knowledge of how to offset the change.

INFORMATION GRASP	HIGH	2. Homeostasis Activity : Restorative Purpose : Maintenance	1. Metamorphism Activity : Utopian Purpose : Complete Change
	LOW	3. Incrementalism Activity : Developmental Purpose : Continuous Improvement	4. Neomobilism Activity : Innovative Purpose : Inventing, Testing and Diffusing Solutions to Significant Problems
		SMALL	LARGE
DEGREE OF CHANGE			

Figure 2.  
Model of Decision Making Settings  
[From Stufflebeam (1973)]

Such an occurrence in the field of mental health program evaluation is extremely unlikely due to the myriad of uncontrollable and unpredictable service factors.

Homeostatic decision making refers to a restorative activity aimed at maintaining the status quo of a functioning system. It would be the appropriate decision setting in quality control type evaluation studies.

Incremental decision making is concerned with developmental activities aimed at continuous, stepwise program changes. The emphasis is on incremental changes to the program creating something new, rather than returning it to a previous balance.

Neomobilistic decisions are innovative activities for inventing, testing and diffusing new solutions to significant problems. Such changes are large and occur with the decision makers possessing little extrinsic knowledge or theory.

Knowledge of the decision making settings just discussed is a necessary but not sufficient requisite for the model of decision making. Also needed are exhaustive and mutually exclusive categories of types of decisions. Stufflebeam classified decisions as a function of whether they pertain to ends or means, and



whether they pertain to intentions or actualities. Thus he postulates that evaluation decisions can be categorized into four types (a) intended ends (goals), (b) intended means (procedural designs), (c) actual means (procedures in use), and (d) actual ends (attainments).

From Figure 3, it can be seen how this scheme identifies four types of decisions, namely :

1. Planning decisions to determine objectives.
2. Structuring decisions to design procedures.
3. Implementing decisions to utilise, control and refine procedures.
4. Recycling decisions to judge and react to attainments.

To summarise, Stufflebeam (1973) stated that decision making has two main features. Firstly it can occur in four settings which vary depending upon the degree of change sought and the knowledge base required. Secondly, four types of evaluation decisions can occur in these settings, that is, planning, structuring, implementing and recycling. The types of decisions vary upon whether they refer to means or ends, and actual or intended targets. The incorporation of these features into Stufflebeam's model of evaluation will now be discussed.



	INTENDED	ACTUAL
ENDS	Planning decisions supported by Context Evaluation	Recycling decisions supported by Product Evaluation
MEANS	Structuring decisions supported by Input Evaluation	Implementing decisions supported by Process Evaluation

Figure 3.  
Types of Decisions and Evaluation Phases  
[From Stufflebeam (1973)]

The general logic of the evaluation model is shown in Figure 4. A program is evaluated to influence decisions which influence program operations which in turn are evaluated and so on. The evaluation process involves the delineation, obtaining and providing of information for further decisions.

Corresponding to the four decision types discussed earlier are four types of evaluation which combine to form the overall model of program evaluation. These are :

1. Context evaluation - which serves planning decisions to determine objectives.
2. Input evaluation - which serves structuring decisions determining project designs.
3. Process evaluation - serves implementing decisions to control project operations.
4. Product evaluation - serves recycling decisions to judge and react to program attainments.

Each of the components of the CIPP evaluation model will now be discussed in more detail.

#### Context Evaluation.

Context Evaluation provides a rationale for the determination of goals and objectives. It is used to define the relevant environment, describe the actual and desired conditions of the environment, identify unmet needs and diagnose problems which prevent these needs from being met.

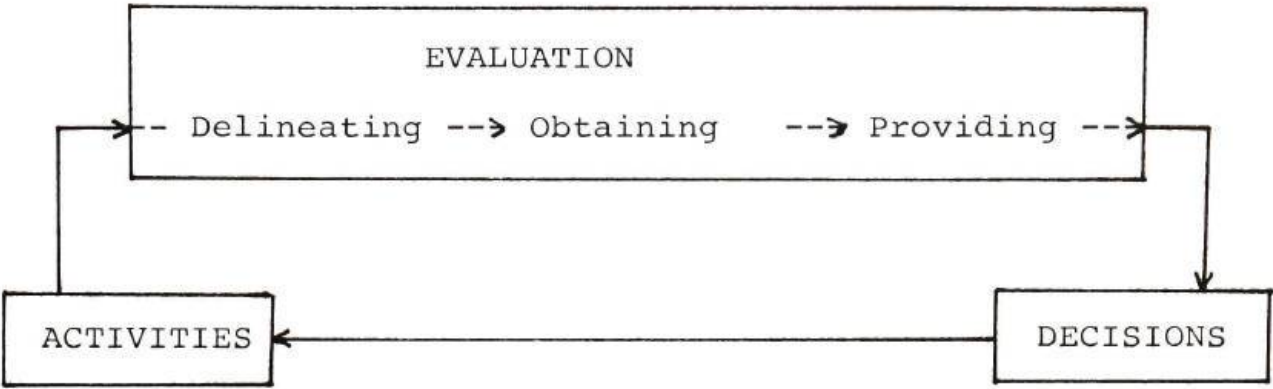


Figure 4  
Flow Diagram of The Relation of Evaluation to  
Decision Making  
[From Stufflebeam (1973)]

A context evaluation begins with a conceptual analysis in order to identify and define the limits, and the major sub-sections, of the research domain. Empirical studies are performed to determine unmet needs and unused opportunities. Finally, context evaluation uses both empirical and conceptual analyses to permit judgments on the basic issues to be investigated.

#### Input Evaluation.

The purpose of input evaluation is to provide information on how to utilize resources and best achieve program objectives. This is accomplished by identifying and assessing (a) relevant capabilities, (b) strategies for achieving project objectives, and (c) designs for implementing a particular strategy.

It involves assessment of resource, budget and time requirements; potential barriers; the consequences of not overcoming these barriers; relevance of the designs to program objectives; and overall potential of the design to meet the objectives. Input evaluation provides information for deciding whether outside assistance should be sought, what strategies should be employed, and what design should be used to implement the strategy.

### Process Evaluation.

Once a designated course of action has begun, process evaluation is needed to provide periodic feedback to those responsible for planning and implementing procedures. The three main objectives are :

1. To detect defects in the design or its implementation.
2. Provide information pertinent to earlier decisions.
3. Maintain a record of the procedure as it occurs.

Stufflebeam identifies four essential requirements for process evaluation methodology, namely :

1. A full time process evaluator.
2. Instruments for describing the process.
3. Regular feedback meetings between the evaluator and project personnel.
4. Frequent updating of the process evaluation design.

In summary, process evaluation provides program decision makers with information needed to implement and refine program design and procedure. It permits anticipation and planning to overcome procedural difficulties, and describes the actual process.



### Product Evaluation.

The aim of product evaluation is to measure and interpret attainments both at the end of a program and as often as necessary during the program cycle. It requires operational definitions of objectives, measuring criteria, comparisons of these measurements with predetermined absolute or relative standards, and rational interpretations of outcomes using the recorded context, input and process information.

In the cyclical evaluation process, product evaluation provides information for decision makers on whether to continue, terminate, refocus or modify a change activity. It also links the activity to other major phases of the change process.

### Summary.

Stufflebeam's CIPP model represents a trade-off between the rigour of scientific research and the open ended demands of applied action research. It is used to delineate, obtain and provide relevant information for judging decision alternatives, regardless of the statistical inadequacies of the data. The model is cyclical and permits decisions which may change or continue the present procedures, at any point in the process.



Four types of decision settings are postulated, each representing a degree of change related to the requisite knowledge base. These are labelled (a) metamorphic (b) homeostatic (c) incremental, and (d) neomobilistic.

Within the decision settings, the evaluation consists of four parts :

1. Context - for planning decisions.
2. Input - for programming decisions.
3. Process - for implementing decisions.
4. Product - for recycling decisions.

The evaluation operates in a continuous feedback loop with each portion of the evaluation recycling information for ongoing quality control. Each component of the evaluation leads to changes in the various decision making arenas. For example, if a context evaluation indicated a deficiency in a particular area, a rational decision making body may choose to make homeostatic changes - decisions to effect small changes with high information grasp.

Stufflebeam's model has been criticised by some authors on a number of points. For example Worthen and Sanders (1973) listed four areas in which they believe

the model has limitations, namely :

1. It has little emphasis on value concerns.
2. The actual decision making process is unclear, the methodology is undefined.
3. The model may be costly and complex if used entirely.
4. Not all activities suggested are clearly evaluative.

Despite these shortcomings, Stufflebeam's model provides a useful structure upon which to build an evaluation. However, to overcome some of its limitations, the model will be modified using the ideas of Scriven (1973) and Patton (1978).

#### A Value Free Model

Scriven (1973) supported Stufflebeam's model and its associated methodology but altered the concept of evaluation to include a goal free stance. He argued that value judgments are a crucial part of all sciences, and so all aspects of a program should be evaluated. Scriven believed that an evaluator should regard nothing as predetermined by the organising agency.

His approach was to encourage evaluators to take a more open view of the evaluation context and to look and evaluate the many factors involved in value judgments. Scriven disagreed with Stufflebeam's requirement for an independent evaluator, claiming that the evaluator was

the best qualified decision maker and therefore should be an integral part of the process.

In the present study, the evaluator is part of the decision making team and so the current model will be modified to incorporate Scriven's (1973) formulations for value oriented evaluation.

#### A Utilization Focussed Evaluation Model

The evaluation models discussed thus far have been theoretically based formulations which can be interpreted in a number of ways (Jemelka & Borich, 1979). However, perhaps the greatest crisis facing evaluation theorists is the underutilization of evaluation results (Patton, 1978). Williams and Evans (1969) summed up the difficulties and wrote "that in the final analysis, the test of the effectiveness of outcome data is its impact on implemented policy. By this standard there is a dearth of successful evaluation studies" (p.453).

Weiss (1977), in her review of the status of social research, noted that whilst the utilization crisis concerned all types of applied social science, nonutilization seemed to be particularly characteristic of evaluation studies.

In an attempt to overcome the imbalance of volume versus utilization of evaluation research, Patton (1978)



developed a model of utilization-focussed evaluation methodology. It is not a formal recipe for conducting evaluative research, but rather a model offering an approach, an orientation and a set of options. The evaluator chooses from these options when working with decision makers and information users throughout the evaluation process.

Patton listed two fundamental requirements :

1. Relevant decision makers and information users must be identified and organised.
2. Evaluators must work actively, reactively and adaptatively with the identified decision makers and information users to make all other decisions about the evaluation. These decisions include choices about research focus, design, methodology, analysis, interpretation and dissemination.

Patton went on to postulate five steps in the evaluation process to enhance the chances of utilization, namely :

1. Identification and organization of relevant decision makers and information users.
2. Identification and focussing of the relevant evaluation questions.
3. Selection of evaluation methods that generate useful information for the identified decision makers and users.
4. Participation of decision makers and information

users with evaluators in data analysis and data interpretation.

5. Evaluators and decision makers negotiate and cooperate in dissemination efforts.

He suggested that whichever theoretical model of evaluation is adopted, the chances of results being utilized are greatly increased if his model of application is adhered to. Patton advocated constant feedback and co-operation between evaluators and decision makers to increase everyone's stake in the successful outcome of the project.

In summary, Patton (1978) has provided suggestions to increase the chances of utilization of evaluation results. His approach permits the adoption of any theoretical model of evaluation, while focussing on the practical issues of obtaining and providing data in a form useful to decision makers.

#### Evaluation of the Current Study

For the purposes of the current study, Stufflebeam's model (Stufflebeam, 1973, 1983; Stufflebeam et al., 1971) of evaluation for decision making will be used. His theoretical stance will be modified by Scriven's (1973) formulations on the need for value judgments in evaluation, and the importance of involving the

evaluator in all decision making. Using this combination of models as a theoretical structure, Patton's (1978) principles of utilization-focussed evaluation will be incorporated into the format for data collection, analysis and dissemination.

The current evaluation, in the format proposed by Stufflebeam's CIPP model, will be as follows :

1. The context of the program will be a review of the literature pertaining to rural environments and the associated models of mental health service delivery. This will be followed by a description of the creation of the new service and the goals of the program. Finally, needs assessment techniques will be examined and descriptions of needs surveys in the region presented.
2. The input phase will be a description of the way in which the new service operated.
3. Process evaluation will be dealt with in the the first of four studies. This study will assess and analyse various parameters of the program's functioning.
4. Product evaluation will consist of the remaining three studies where the impact on the consumers, the rural communities and other psychiatric services, will be assessed. The overall efficacy of the new model of service delivery will then be discussed.



5. Feedback to decision makers will be provided in a number of recommendations for the development of mental health services to rural Australia. Directions for future research will also be discussed .

Using this framework as a presentation format, this thesis will tell the story of the creation, implementation and evaluation of a mental health service to south-west Queensland.

SECTION B

THE CREATION OF THE SERVICE

## CHAPTER 2

### THE RURAL SETTING

To create a base for the evaluation of this new service, it is essential to establish the parameters of the Context. As a first step, we turn to the literature on rural environment to obtain a working definition of rural, and a description of the differences between rural and urban environment.

A basic methodological problem of studying rural areas is framing an operational definition of rural. Most typically researchers have adopted one of two strategies : use of statistical, census-based definitions or less quantifiable, sociological type descriptions. Each of these definitions will now be discussed.

#### Statistical Definition

The United State Bureau of the Census defines rural residents as those people living in open country or communities of less than 2,500 people. An area is defined as rural when at least 50 percent of its residents are classified as rural (cited in Yahroes et al., 1976). Using this criterion, over a quarter of the population of the United States, more than 60 million people, can be designated as rural (Ozarin,1983).

The Australian Bureau of Statistics defines rural inhabitants as those living in population clusters of 200 to 999 persons, or in areas with less than 200 persons within a bounded locality (Cameron, 1983).

Both of these definitions are derived from size of place numerical standards fitted to political subdivision boundaries, and as such, serve a useful statistical standard. However such demarcations largely ignore human realities in population clustering. Census definitions tend to rely on single variables (e.g., community population), ignoring other salient dimensions of ruralness. Flax and his colleagues (Flax et al., 1979) identified three elements crucial to the understanding of population dynamics, namely:

1. Population structure - for example, age and sex distribution.
2. Population composition - sociodemographic characteristics like marital status, income, ethnicity, occupation and education.
3. Population distribution - the spread and location of people in a given area.

Thus, census definitions describe population distribution but fail to take other salient factors into account. A more comprehensive but less objective definition can be obtained by viewing ruralness as a sociological construct.

### Sociological Definition

The term rural suggests areas which are predominantly agricultural, have a low population density and relative isolation from large urban centres. As a sociological concept, the term more accurately describes a continuum which ranges from the extremes of the latter description to characteristics more commonly recognised as typical of residents in large metropolitan areas (Youmans, 1977).

People living in urban areas are attributed with a certain tolerance and polished manner born of this milieu, and cities are seen as offering variety, eventfulness and stimulation to the residents (Davis, 1949; Milgram, 1970). The trend in metropolitan settings is toward more individualistic behaviour, a lessening of custom and tradition, a stronger adherence to secular values and beliefs, and a greater number of short, superficial social contacts (Youmans, 1977).

In contrast, rural society is more in keeping with what Youmans (1977) and Martinez-Brawley (1980) call a "folk society" where the culture "places a strong emphasis on conventional behaviour and conformity to traditions and customs, and values strong adherence to kinship control of behaviour" (Youmans, 1977, p.83). People living in rural communities have fewer interpersonal contacts which are of longer duration and limited to a small geographic area. Sacred and religious beliefs play an important note in the society, and a rigid



social structure minimises or impedes the introduction of new ideas and change (Reynolds, Banks & Murphree, 1976).

Recent decades have seen a gradual blurring of the sharp distinctions between rural and nonrural areas (Melton, 1983). In many locations rural environments have undergone substantial changes and "urbanisation". Modernisation is reflected in increased productivity, fewer farms, more hobby farming, prospering agriculture related industries, complex social organisations and in improved transport and communication facilities (Jones, 1983; Strachan, 1976).

The preceding discussion has highlighted some of the difficulties of defining ruralness. Statistical definitions provide reliable measures but neglect many other important parameters. Alternatively, sociological descriptions are broader but often lack objectivity and are not readily quantifiable. The literature in the field contains a confusing melange of definitions of rural, and thus considerable inconsistency occurs (Melton, 1983).

Some authors argue that rural-urban differences have essentially disappeared and that any demarcation is unnecessary (Martinez-Brawley, 1980). However most researchers agree that "ruralness" does exist as a



physical and psychological construct and there are many people who face the special problems of being rural (Dillman,1982; Flax et al.,1979). For the purposes of this study, the Australian Bureau of Statistics' definition of rural will be adopted, with consideration given to sociological factors where possible.

Having defined the population to be considered, some of the features and inherent problems of people living in rural communities will now be discussed. Such issues were addressed by Flax and his co-authors (1979) who listed three types of human services in which an imbalance or deficit existed in rural areas, that is (a) health, (b) economic status, and (c) transportation.

Each of these will now be discussed in greater detail.

### Health

According to some reports, the health of rural residents is markedly poorer than the health of urban residents ((Copp,1976; Reynolds et al.,1976; Roemer,1976). Country people experience higher infant mortality, more chronic illnesses, fewer hospital beds, fewer days spent in hospital and less frequent physician service. The poorer general health is caused partly by the fewer numbers of medical and ancillary medical personnel

practising in rural areas (Sheps & Bachar, 1981). In 1976, the United States national distribution of physicians was 137 physicians per 100,000 persons. Of these, the rural areas accounted for only 50 physicians per 100,000 people (Sheps & Bachar, 1981). Australia experiences a similar inequity with the national distribution of physicians being 251 per 100,000 people, and the ratio in rural areas being only 143 per 100,000 people (Cameron, 1983).

Combined with the lower availability of medical and allied professionals is a significant difference in the utilization of health services by rural people. Sheps and Bachar report rural residents making fewer visits to their local medical practitioners despite comparable prevalence of illnesses. They attribute this to the vast distances needed to travel for service, and to the perceived less quality of the available services.

Thus the evidence suggests that rural areas experience at least as severe health problems as urban provinces, yet possess few facilities, and these of a lesser quality.

#### Economic Status

A considerable number of reviews have compared the

economic conditions in rural and urban United States (e.g., Dillman & Tremblay, 1977; Hines, Brown & Zimmer, 1975; Korte, 1983). The studies show consistent and pervasive economic weaknesses in rural areas. When compared to urban areas, rural areas show lower levels of average income, greater underemployment and a higher proportion of people living below the poverty line.

In 1970, the median income of urban families was nearly \$3,000 greater than that of rural families (Hines et al., 1975). Additionally the level of income for nonmetropolitan families decreased as the area became more rural.

Although the unemployment rate has not differed substantially between rural and urban areas, there are notable differences in employment related indicators (Korte, 1983). Korte reported that rural workers had a higher rate of part-time employment and that a fully-employed rural worker earned much less than a fully employed urban worker. He postulated that if these factors were taken into account, the unemployment rate would show a clear disadvantage for rural areas.

A third indicator of economic status is the proportion of people living below the poverty line. In the United States, one out of four people in rural communities is poor, whereas only one of eight in



urban centres is classified as living below the poverty line (Ozarin, 1978). The Commission of Inquiry into Poverty (1975) found rural Australians to be similarly disadvantaged with 14.4 percent of rural families designated as below the federal poverty line (as compared with 8.5 percent of urban families).

Overall, the economic indicators are consistent in highlighting the economic disadvantages of rural areas. These inequities have been blamed on the reduced employment opportunities, lower wage scales and general labour force characteristics of rural areas.

### Transportation

Transportation and communication networks are both an end in themselves and means toward achieving other ends, such as provision of health and social services. A lack of adequate or affordable transportation facilities is a formidable barrier to the delivery of even rudimentary services (Perry, 1976). The features of rural areas - large geographic expanses and low population densities - dramatically increase the cost of transportation and therefore severely limit its availability to many high risk groups in the community (Flax et al., 1979).

Contemporary technology has made possible greatly diversified and sophisticated transportation and communication innovations. Yet as Flax and his coauthors

have pointed out, very few have been explored within the context of possible rural applications.

Previous sections have described some of the differential features of rural environments. Common parameters of vast distances, low population density, a greater proportion of poverty, poorer general health, and fewer health service facilities characterise the rural setting. The influence and cumulative effect of these factors will now be considered in relation to psychiatric epidemiology.

### Psychiatric Epidemiology

To this point, the features of the rural setting have been presented to illustrate the juxtaposition of rural versus urban environments. Each has its proponents and each has both positive and negative aspects. For many years, researchers have argued as to the relative merits of each and debated which is the more conducive to mental health. Research findings on psychiatric epidemiology do little to clarify this issue (Flax et al., 1979; Huessey, 1972). The research to date has been confusing and contradictory.

Edgerton, Bentz, Hollister, Clements and Summers (1970) reported on the first study to specifically investigate the mental health of rural populations. Using the Health Opinion Survey (HOS) developed in the Stirling County studies, Leighton, Harding, Macklin, Hughes and Leighton (1963) reported prevalence rates of 14%



"borderline" or probable cases, and 10% of the population showing definite psychiatric symptomatology.

In a survey of 1,645 respondents in both rural and nonrural areas of Florida, U.S.A., Schwab, Warheit and Holzer (1974) found comparable results using the HOS. Three-quarters of the total subjects scored within the normal range, 16.4% were borderline and 9.4% were found to have definite impairment. Rural-urban differences were statistically significant with 10.5% of the probably cases living in rural areas, but only 7.8% living in urban areas. Schwab and his co-workers presented their findings with the caution that the "urban" areas under study were, in reality, expanding suburban complexes possessing characteristics more commonly seen in rural cultures and communities.

Mazer (1976) demonstrated that by using different definitions of mental disorder, very different nonurban prevalence rates could be determined. Mazer, a psychiatrist in practice on a rural island off the coast of Massachusetts, used (a) diagnosis by General Medical Practitioner, (b) treatment at a psychiatric clinic, and (c) "parapsychiatric" events such as jail or marital dissolution, as his three criteria for psychiatric disorder. He reported prevalence rates varying between

2% and 22% of the population, depending on the dependent measures used. The findings of Mazer's studies highlight the importance of the definition of disorder adopted by the experimenter.

The most recent community study to examine prevalence in rural populations was conducted in a rural area of Tennessee (Husaini, 1983; Husaini & Neff, 1980; Husaini, Neff & Stone, 1979). Multiple survey instruments including the HOS, the Centre for Epidemiologic Studies Depression Scale (CES-D) and the General Well-Being Schedule (GWB) were used. Results indicated that of the respondents, approximately 10% were probably psychiatric cases suffering from an impairing level of disability.

In contrast to these studies, which showed rural prevalence rates being greater than non rural, other research has found prevalence rates to be significantly higher in urban areas (Fischer, 1973; Srole, Langer, Michael, Opler & Rennie, 1962). Dohrenwend and Dohrenwend (1969) summarised other epidemiological studies, and found that of the nine studies evaluated, one showed a higher prevalence of mental illness in rural areas, one no difference, and the remaining seven reported higher rates in urban areas. Prevalence rates of mental disorder in rural communities ranged from 1.7% to 64%. Finally, Comstock and Helsing (1976) found no evidence to suggest rural-urban differences in depressive symptomatology.

Clearly, the literature in this field is inconsistent and contradictory. Various explanations have been posited. Dohrenwend and Dohrenwend (1969) criticized most of the early studies on the grounds that the few studies which did include respondents from both rural and urban communities, did not provide for systematic rural-urban comparisons. They concluded that prevalence rates which did differ, could be accounted for by differences in diagnosis, sampling technique and definition of the target population, rather than true prevalence. Such sentiments have been echoed by Comstock and Helsing (1976) and Husaini and Neff (1980).

Another explanation was proposed by Roy, Choudhuri, and Irvine (1970). In a prevalence survey amongst the Saskatchewan Indians of rural Canada, they noted that whilst the survey data provided accurate information for the white population, it did not for the Indian population. The authors concluded that traditional survey methods were unsuitable in the culturally diverse populations of rural areas.

In summary, attempts to assess prevalence have been conflicting :

1. Nine studies found higher prevalence rates of mental disorder in urban areas;
2. Twelve studies reported higher prevalence in rural areas;



3. Three studies found no rural-urban differences in psychiatric epidemiology.
4. Inconsistent diagnostic criteria, unsuitable sampling techniques, and difficulties in differentiating between rural and urban populations, are postulated as reasons for the low correlation of results.

Although the evidence could be interpreted as indicating a high prevalence of mental health problems in rural areas, such conclusions should be drawn with caution (Flax et al., 1979; Huessy, 1972). The romantic view that rurality is conducive to better mental health is not supported by research findings. What is clear is that an imbalance in health care resources exists between urban and rural areas. Reasons for this imbalance, barriers to service delivery, will now be discussed.

#### Factors Affecting Psychiatric Service Delivery to Rural Areas

The preceding arguments suggest that there are certain distinct differences between urban and non-urban environments. These differences must be recognised and planned for, in order to develop effective rural mental health programs (Ozarin, 1978). Sociodemographic variables such as (1) target populations dispersed over

large areas, (2) psychiatric and social problems differing between environments, and (3) varying perceptions of mental illness because of cultural diversity in rural areas, all present major obstacles to the delivery of services. In the following section positive and negative factors which affect the delivery of mental health services to rural populations will be discussed under the following headings :

1. Urban bias
2. Access
3. Limited resources
4. Attitudes toward mental illness
5. Visibility
6. Personnel and training problems
7. Sense of community

#### Urban bias

Bachrach (1983) makes the point that, traditionally , psychiatric service planning has focussed on urban concerns. There is a strong tendency to derive program goals, program designs and service structures from concepts that are essentially urban. With the majority of the population residing in urban centres, such a bias is hardly surprising, but nevertheless it greatly inhibits the provision of adequate and responsive services to rural areas.



An urban bias is not unusual for health and human services planning since most social planners live in metropolitan areas. Their theoretical convictions and questions derive from literature that is almost wholly drawn from the urban milieu (Jones, 1983). Bachrach (1977) cites statistics showing that rural people enrol in proportionally fewer psychiatric services and use them less efficiently, than do urban people. Yet, the very measures used to assess utilisation - number of patient visits, professional staff hours spent in delivery and inpatient occupancy rates - reflect a strong urban bias. For example, a rural resident, travelling several hundred miles for one consultation, would use as much "work" time and incur as much cost as a city dweller making four or five similar visits.

The idea of designing mental health catchment areas in terms of population size is a strictly urban notion (Bachrach, 1983). Bachrach points out that to include 75,000 to 200,000 people in a rural catchment area would almost certainly mean ignoring natural and social boundaries, and planning for jurisdictions so geographically large as to defy realistic program strategies.

Thus a major barrier to overcome is to be able to view rural settings from outside the framework of an urban environment.

### Access

The distance patients must travel to obtain service is a significant factor in the use of psychiatric facilities (Dworin, Green & Young, 1964; Hodges, Fritz & Fasso, 1967; Prue, Keane, Cornell & Foy, 1979). Tremendous problems arise when attempting to provide services to vast geographic areas with dispersed populations. Public transportation is almost nonexistent in these areas and so client travel is more difficult and more costly. The other alternative, to bring the service to the client, also becomes very expensive when considering the costs of staff transport, telecommunications and staff time needed for travelling to the areas (Ozarin, 1978).

Together with the physical barriers are social barriers to access. Many rural people fail to utilise existing facilities because of misunderstandings or misconceptions as to the function and purpose of psychiatric services, or simply by not being aware of the existence of such facilities (Huessy, 1972; Lee, Gianturco & Eisdorfer, 1974). Whilst problems of access are not exclusive to rural areas, their relative importance is certainly greater in these settings.

### Limited Resources

The previous section described how transportation difficulties create barriers to service, but even if

clients could reach their destination, where would they go? A strong urban bias in program design and program requirements becomes evident as a lack of adequate service structures and facilities (Bachrach, 1983). The limited population base of rural regions generally is insufficient to support the range of psychiatric, medical, social and rehabilitative services considered essential elements in a system of care for mentally ill patients.

Flax et al. (1979) made a rural-urban comparison of general hospital psychiatric facilities. They found one in three urban areas had such a service, yet only one in fourteen rural counties boasted this facility. Further, only one in every ten psychiatric outpatient clinics was located in a rural area, and a disproportionate number of these operated on a part-time basis.

Bachrach (1983) summarised the issue of limited resources when she stated, "In general, the whole service structure and facilities for rural areas are inadequate" (p.219).

#### Attitudes Toward Mental Illness

Cumming and Cumming (1957) conducted the earliest study examining the attitudes of rural residents toward mental illness. Their results indicated that rural folks generally held negative attitudes toward people



with psychiatric problems. More recent studies in a rural area of North Carolina reported favourable attitudes towards the mentally ill (Bentz & Edgerton, 1970; Bentz, Edgerton, & Kherlopian, 1969).

Apart from these isolated studies, few data exist on the attitudes of rural populations. In their discussion, Flax and his colleagues (1979) suggested that similar to society in general, rural attitudes toward mental illness are gradually becoming more positive. They attributed this to the intensive public education and media coverage which has occurred over the last two decades. In conclusion, they commented that the most important factor in such a progression is the presence of mental health facilities in the community.

Thus, from the limited research available, it appears rural attitudes are paralleling, but slightly behind, urban attitudes on mental illness.

### Visibility

Rural persons affected by mental health problems seek no help 50% of the time. Of those who do seek help, most visit general medical practitioners. The remainder either travel to psychiatric facilities, or go to the local ministers, police, welfare workers or friends (Berry & Davis, 1978). Fear of being identified as mentally ill sets up effective barriers to help-

seeking in small communities. As Berry and Davis commented, the small size of rural communities implies the existence of only one mental health facility, for use by all clients, meaning "there is a high probability that a person visiting the centre will be recognised and talked about by acquaintances" (p.678).

The increased risk of breaches of confidentiality is seen to be a significant factor in utilisation of mental health services in rural areas (Solomon, 1980; Solomon, Heisberger & Weiner, 1981; Tucker, Turner & Chapman, 1981). Confidentiality is extremely hard to maintain in small communities because of the high visibility of both clients and staff. Solomon et al. (1981) felt one of the most difficult dilemmas facing mental health staff in rural settings, was achieving the balance between maintaining client confidentiality whilst meeting the requirements of neighbourhood gossip.

All of the researchers agreed that the questionable positive value of earlier detection of deviation due to the higher visibility in rural settings, was more than outweighed by the difficulties of providing private and confidential care.

Thus, the greater visibility in rural communities means that :



1. Deviant behaviour is identified more quickly.
2. Patients using mental health facilities are more likely to be noticed and labelled as mentally ill by the community.
3. Confidentiality of patient information is harder to maintain.

#### Personnel and Training Problems

Marked deficits exist in the distribution of specialist staff in rural areas. The disproportionate lack of staff results from the more complex requirements upon staff to function adequately in small towns (Bachrach, 1983; Berry & Davis, 1978; Solomon, 1980). Special skills regarded as essential include: (a) knowledge of rural politics and power structures, (b) the ability to develop informal patterns of communication with key community officials, and (c) the need to be familiar with and sympathetic toward local cultural values, norms and socio-economic conditions.

Service personnel in rural areas are usually also expected to work as "generalist" therapists rather than specialists. Despite their high level of training and expertise, staff may find themselves working in areas for which they have little or no training and which are only marginally related to their vocation (Buxton, 1973).

Another difficulty faced by professionals in these areas is coping with the transition from an urban to a rural environment (Bachrach, 1983; Ozarin, 1978; Tucker et al., 1981). The great majority of personnel are urban trained and experience difficulties adjusting to the personal, social and professional isolation inherent in working in a distant small community. Riggs and Kugel (1976) refer to this transition as a true culture shock. Most authors suggest an extensive screening and education program to assist urban trained staff to cope with rural environments.

In summary, problems relating to personnel working in rural areas involve :

1. Developing a knowledge of small town politics and pathways to care.
2. Working as a generalist rather than a specialist.
3. Dealing with the transition of urban trained staff moving into the social milieu of a small town.

The majority of factors discussed so far have been concerned with the negative aspects of life in a rural community. Research literature has presented a number of recurrent negative themes such as geographic isolation, limited population, poverty, urban bias in planning and funding, attitudinal barriers to care, greater stigma and staffing difficulties. Despite this emphasis on the many problems associated with psychiatric service

delivery to rural areas, there exist several distinct advantages not found in urban environments.

#### Sense of community

The rural sense of "community" and its attendant primary group advantages can be a bonus for personnel seeking grass roots co-operation (Cutler & Madore, 1980; D'Augelli & Vallance, 1981; Huessy, 1972). Folkways and mores exist which reinforce extended families and other supportive social relationships. A rural social milieu tolerates a greater degree of deviance in its residents. As well, there usually reside persons who are best regarded as indigenous service extenders, better able to deal with specific minority groups (Huessy, 1972). Commonly, these complex helping networks are invisible to outsiders, but this does not diminish their effectiveness. Wherever possible, these natural helping patterns should be reinforced and incorporated as fully as possible into the more formal psychiatric service structures (Cutler & Madore, 1980).

Mazer (1976) believes that greater visibility, seen at times in a negative light, functions also in a very positive sense. He feels patients may receive greater personal attention and be more likely to be identified as needing care. The therapist may also gain access to valuable information about patients that is difficult to obtain in urban settings.



In her summary of the positive benefits of rural areas, Bachrach (1983) stated the single most important asset is the personnel who choose to live and work in these communities. She concluded that the skill and dedication needed to persevere in the face of rural adversities guarantees the highest quality service delivery.

#### Summary of Rural Features

To summarise, rural environments are characterised by features of :

1. Sparsely populated large geographic areas.
2. Poorer general health.
3. Greater proportion of poverty.
4. Limited transportation.
5. Psychiatric problems at least as prevalent as in urban centres.

These features create barriers to the delivery of psychiatric services to rural areas such as :

1. An urban bias in planning and funding.
2. Fewer mental health facilities.
3. Reduced access to these facilities.
4. Greater visibility resulting in more negative labelling and reduced confidentiality.
5. Staffing difficulties.

These negative features are somewhat offset by

positive benefits like a greater sense of community, more social supports and effective informal helping systems.

Overall, the evidence indicates that rural environments are fundamentally different in many ways from urban environments. Although some of the problems faced in mental health service delivery are common to both settings, rural areas present a unique combination of difficulties. The following chapter will discuss how new models of mental health care have been developed to cope with the unique difficulties and barriers found in rural areas.



## CHAPTER 3

## RURAL MENTAL HEALTH SERVICE MODELS

The United States Government lists 12 services which all federally funded mental health facilities are required to provide (Public Law 94-63, cited in Edgerton, 1983). These services are (a) inpatient care; (b) outpatient care; (c) partial hospitalisation; (d) emergency services; (e) consultation and education; (f) services for the elderly; (g) services for children; (h) screening services for courts; (i) follow up care for discharged psychiatric patients; (j) transitional services to aid former patients to adjust to community life; (k) alcoholism services and (l) drug abuse services. Mental health facilities throughout the world aim to provide, to a greater or lesser extent, similar services.

Urban models of care have typically relied on high population density, easy client access and high staff-patient ratios to deliver these services. However, due to the barriers discussed in the previous chapter, the provision of such services to rural areas has necessitated many changes in the traditional urban models of delivery. Most of these adaptations have emphasised the utility and effectiveness of outpatient-based services in rural areas (Edgerton, 1983). The rural models were designed to either take the

facilities to the people, or to provide services in a place to which the people can come.

Four types of delivery model evolved. These are :

1. Independent travelling clinics.
2. Hospital-based travelling services.
3. Satellite centres.
4. Community mental health clinics.

#### Independent Travelling Clinics

The earliest rural model was the travelling mental health educational clinic (Ebaugh & Lloyd, 1927). Teams of psychiatrists and psychologists from the University of Colorado would travel on a once-a-month basis to distant towns in order to educate local personnel in methods of dealing with mental disorders. They sought "to change the hopeless, fearful, condemning attitudes of the public toward mental illness" (Hopple & Huessey, 1954, p.50).

Over the next three decades, this service and others like it, changed their emphasis. A greater proportion of direct client contact was included in the visits, and early identification and treatment of psychiatric problems in children became a priority (Coleman & Switzer, 1951; Hopple & Huessey, 1954;

Thaler, 1950). Primary prevention of adult psychiatric illness was sought through treatment of disorders in children.

In the early years of the programs, the clinics provided a service without generating any local involvement, but as the service developed, such involvement came to be regarded as a necessity. The psychiatrist, psychologist and social worker who represented the travelling component of each team were joined by full-time representatives in each community visited. The rural based team members were usually nurses or social workers trained to screen potential clients and obtain relevant historical information (Hopple & Huessey, 1954). More recent adaptations of the model have added air travel to the existing road transport systems (Gould, 1969; Krush, Brown & Nelle, 1965).

Many of these services operated on an ad hoc basis. Frequency and length of visit was variable, dependent upon the purpose of the visit, the community's need and the availability of travelling personnel. Clinics were either diagnostic, therapeutic or consultative, or any combination of these. In many instances, time and staffing constraints limited the clinic's clientele to specific age groups (Stai & Atkinson, 1972; Thaler, 1950).



For several reasons this model did not prove to be satisfactory in the North American setting. One reason was that the travelling team members almost never become part of the fabric of the visited communities and therefore remained unfamiliar with community structures and problems (Edgerton,1983). Another reason was the logistical problems of a team travelling together, namely, ensuring personal compatibility, transport availability, obtaining sufficient office space and adhering to predetermined schedules (Stai & Atkinson,1972). Yet another reason was that travelling in inclement weather, particularly in mountainous terrain, frequently proved to be an insurmountable obstacle (Heiman,1983).

The crux of these difficulties was that independent travelling teams needed to maintain self-sustaining income through direct care services. Therefore any problem which limited the available service reduced the cost-effectiveness of the travelling team as a service delivery model (Edgerton,1983). Edgerton goes on to point out that travelling clinics are not cost-effective "since salaries and travel are expensive in relation to the amount of services actually delivered" (1983,p.279).

Thus the features of the travelling clinic model of service delivery are :

1. Regular, usually monthly visits to distant towns.
2. Travelling professional staff assisted by permanent staff located in the towns visited.
3. Clinics having diagnostic, therapeutic or consultative roles, depending on the needs of the community.
4. Seen as not cost-efficient because the social and logistical problems of travelling teams combine to limit direct patient services which reduces self-sustaining income.

#### Hospital-Based Travelling Services

The Clarinda Plan was the first state hospital-based mental health service to rural areas (Garcia,1960). This model of care was based on the idea that state hospitals would be divided into units, each unit responsible for serving a specific geographic area. Unit staff would visit their rural catchment areas as often as three days per week, co-ordinating their activities with local personnel. Continuity of care was also improved with the same staff providing initial assessment, inpatient care and postdischarge follow-up in the rural town (Huessy,1972).

A similar model has been widely adopted with expansive programs in Canada (Kreyes,1968; La Fave, Stewart & Grunberg. 1968; Miles, 1980; Murphy & Lemieux,1967) and other areas



of North America (Kaiser & Townsend,1981).

This model of service delivery is regarded as preferable to independent travelling clinics because of the improved continuity of care and the decreased need for self-sufficient funding (Edgerton,1983). Central office specialists, not affordable by independent teams, are available to outlying rural centres on a regular basis. The increased costs are borne by the state hospital.

An extension of this model using permanent outlying facilities supported by centralised services is the satellite centre model.

#### Satellite Centres

Satellite centres are probably the most widely used means of providing outpatient services to large rural areas (Edgerton,1983; Huessey,1972). This model entails the operation of small outpatient facilities in outlying towns, in combination with a broad range of services in a centralised location.

A small number of professional staff live in the rural community and work full-time at the satellite centre, whilst travelling specialist staff are available on a part-time basis. Citizens in the rural community

may receive services there, or obtain access to the centrally-based services such as inpatient or day care. These central services might not be cost-effective for the satellite (Edgerton,1983).

Radio and television communications have added another dimension to the operation of satellite centres. Remote clinics are now no longer dependent upon road or air transport for the input of specialist staff. In Alaska, a service was created using professionals in urban areas consulting with trained aides in remote rural areas via two-way radio (Foote,1977; Torrey,1970). Prior to its inception, patients were referred from the satellite centre to a hospital in Oregon, some 2,800 kms distant. The goal of the service was to treat as many people as possible in their home community, preventing expensive and unnecessary transfers to the large mental hospital in Oregon. Torrey reports a 50% reduction in the hospitalisation rate of Alaskan residents since the scheme began.

Satellite centres overcome many of the limitations of the travelling team models. Permanent staff are based in the rural communities and therefore are more aware of the unique needs and strengths of their area. Cost-effectiveness is greatly improved by providing

self-sufficient outpatient services at the local level and offering more expensive services at a centralised location (Edgerton,1983).

#### Community Mental Health Centres

Arguably the most effective model of rural service delivery is that of the community based mental health centre (Huessy,1972). This model expands the satellite model to incorporate the establishment of full-time professional and paraprofessional staff and facilities in each community serviced. Inpatient, outpatient and numerous specialist services are available at the centre. Community involvement is achieved by encouraging local residents to participate in the functioning and staffing of the centre where appropriate. The primary aim of community mental health centres is to treat mentally ill people in the community by utilising and expanding existing community resources (Flax et al., 1979).

It is not clear when the first community mental centre in a rural area became operational. Daniels (1967) was the first to discuss the problems faced by such centres located in rural communities. He noted that mental health planners in the United States had typically concerned themselves with centres in urban and suburban areas, largely ignoring the need for permanent facilities in rural areas. Daniels acknowledged



difficulties such as the large distances involved, low population base and staffing problems, but emphasised the extra recognition and support required by rural centres. Similar sentiments have been echoed by subsequent authors (Bachrach,1983; Jeffrey & Reeve, 1978; Jones, Robin & Wagenfeld,1974).

There is no doubt the application of this model to rural settings differs in major ways from urban and suburban programs. Many of these differences have already been discussed earlier in this paper. However despite the problems of delivery, the community mental health centre model is still regarded as the most appropriate and effective means of service provision to rural areas (Bachrach,1983; Flax et al.,1979; Huessey, 1972). This attitude is based on the belief that permanent staff and facilities, integrated into the structure of a rural community, is the best possible mode of service provision. Services are seen as able to provide immediate help in crises, dealing with the problem by utilising resources within the patient's own community (Flax et al., 1979).

Although this model provides the most comprehensive caregiving facilities, it is also the most expensive, both in manpower and monetary costs- hence the continued widespread use of the less expensive models of delivery like satellite centres (Bachrach,1983). Consequently,



current research is directed towards the design and implementation of more efficacious and cost-effective programs within the community mental health centre framework. Few studies have examined the possibility of new models of service delivery to rural communities.

### Summary

To summarise, the salient features of each model are :

#### 1. Independent Travelling Clinics

- operate largely in isolation from permanent facilities
- regularly visit distant centres by road or air
- provide diagnostic, therapeutic and consultative services on an outpatient basis
- team members failed to be regarded as part of visited communities
- regarded as not cost-efficient due to social and logistical problems of travelling as a team.

#### 2. Hospital Based Travelling Services

- travelling teams based at large state hospitals responsible for provision of services to designated catchment areas
- costs of service provision subsidised by state hospital.

#### 3. Satellite Centres

- outlying clinics supported by centralised facilities

- some professional staff in the community with visiting specialist services
- can use radio and television links for consultation and treatment
- found to reduce unnecessary hospitalisation
- overcomes problem of travelling vast distances.

#### 4. Community Mental Health Centres

- permanently staffed in rural areas
- comprehensive range of facilities
- local personnel incorporated into running of centre
- although costly, seen as best solution to rural service barriers.

All of the models have features in common with each other. Each was designed to meet the different needs of different environments, within certain funding constraints. At present, community mental health centres are believed to be the most efficient solution to the problem of mental health service provision to rural areas of the United States and Canada. The following chapter will now discuss the applicability of the existing research and service models to rural Australia.

## CHAPTER 4

## RURAL MENTAL HEALTH SERVICES IN AUSTRALIA

An overwhelming proportion of the literature concerning service models has dealt exclusively with mental health services in rural areas of North America. The small amount of non-American data available suggests that characteristics of rural communities and barriers to mental health service delivery are similar across the world. Studies in rural areas of Botswana, Africa (Ben-Tovim, 1983), India (Kapur, 1975; Murthy, Kala & Wig, 1978), South America (Harding, 1978). and Japan (Kanezawa, Yamada, Sato, Inada & Iwada, 1977) report common problems in service delivery.

However, few studies exist which directly address service delivery in rural areas of Australia. The following sections will discuss the similarities and differences between rural Australia and the rest of the world, and the subsequent impact on mental health service delivery to areas of rural Australia.

Characteristics of Rural Australia

A description of rural life by an Australian social worker suggests attitudes and cultural values are similar to those found in rural areas of North America (Widdows, 1974). Rural communities are described as being less socially and occupationally diverse than urban areas. Rural residents are more self reliant,

have stronger family and religious ties, and are prepared to forfeit access to urban services and facilities for the greater warmth and friendliness of rural living.

Many problems common elsewhere in the world are also found in rural Australia. Vast distances creating transportation difficulties have been acknowledged as a service barrier (Berry,1979; Walmsley,1978). Poorer general health, scarcity of professional staff, and a lack of cultural,welfare and recreational facilities are all described as rural deficit areas (Beruldsen,1978; Burvill & German,1984; De Maria,1977; Thompson,1979).

The findings of the Commission of Inquiry into Poverty (1975) suggested poverty is also a sizeable rural problem. They found the incidence of poverty to be much higher in rural areas, with 14.4% of households having an income below the poverty line.

As has been documented by several overseas authors, Jones (1983) described a gradual blurring of the rural-urban differences in Australia. He went on to point out however, that this merging has not yet reached the point where the two environments cease to be significantly different.



### Mental Health in Rural Australia

There exists only a small volume of literature concerned with psychiatric problems and services in rural Australia. Gold (1965) recorded suicide and attempted suicide rates, over a three year period in a rural area of Tasmania. Prevalence rates of psychiatric disorders were found to be the same in urban, suburban and rural areas of Victoria (Krupinski, Stoller, Baikie & Graves, 1970; Krupinski & MacKenzie, 1979). Kamien (1975) and Beruldsen (1978) have described their experiences as caregivers in outback towns, and Burvill and his colleagues have compared hospitalisation rates for rural and urban people in Western Australia (Burvill, Reymond, Stampfer & Carlson, 1982; Burvill, Stampfer, Reymond & Carlson, 1982). The latter study showed that admission rates for country women were significantly higher than for country men, or city men and women.

The only study which has examined the impact of rural Australian conditions on mental health service delivery is Burvill, Stampfer and Reymond (1984). Burvill et al., described the facilities available in Western Australia. Australia's largest state, Western Australia comprises an area of 2,525,000 square kilometres with a population of 1,273,624 of whom 374,706 are classified as rural (Cameron, 1983). Outside of the capital, Perth, there exists only five

psychiatric outpatient facilities, and these staffed on a part-time basis. The authors commented on the inadequacy of such services and discussed the inappropriateness of American models of service delivery to rural Western Australia. They see the vaster distances, sparser population and lack of government funding as creating the greatest barriers to the traditional models.

There are no published reports of other rural mental health services anywhere in Australia.

Thus the evidence suggests rural Australia has many similar characteristics to rural areas elsewhere in the world, and mental health professionals face similar barriers to service delivery. Some of the common features shared by rural Australia include :

1. Vast distances.
2. Poverty.
3. Poorer health with fewer facilities.
4. Scarcity of professional staff.
5. A notable deficit in mental health services and research.

However, Australia also possesses many unique features which influence the delivery of mental health services.

### Unique Features of Mental Health Service Delivery

The research reviewed to this point has focussed on the typical features of rural areas and how these features interact to create barriers to the delivery of mental health services. Whilst rural Australia shares many characteristics with rural areas elsewhere in the world, it boasts sufficient unique characteristics to necessitate unique models of service delivery. Three of those having most relevance to the current study are (a) catchment area size, (b) socioeconomic status, and (c) cost to recipient. No literature exists discussing the differential impact of these features. They will now be considered in more detail.

#### 1. Catchment Area Size.

Distances and population dispersion in rural Australia are far greater than those reported in studies from elsewhere in the world. For example, there are 215 rural community mental health centres in the United States serving catchment areas of about 22,000 sq.kms and catering for populations of around 150,000 people (Gertz, Meider, & Pluckhan 1975). Ozarin (1978) quotes the largest catchment area of a community mental health centre as 154,400 sq kms supporting a population in excess of 200,000 people. The largest British catchment area is 11,908 sq kms and serves over 300,000 people.



In comparison, catchment areas in Western Australia average 315,000 square kilometres with a population density of 14 people per 100 square kilometres. The service under study has a catchment area of greater than 400,000 square kilometres with a population of 117,710 (i.e. a population density of 28 people per 100 square kilometres).

## 2. Socioeconomic Status

In the United States and some underdeveloped nations, the term rural is synonymous with poor (Ben-Tovim, 1983; Huessy, 1972). Ozarin (1983), in describing poverty as a major barrier to service provision, reports 25% of rural Americans as living below the poverty line. In contrast, only 14.4% of rural Australians are classified as poverty-stricken (Commission of Inquiry into Poverty, 1975).

Thus there exists a notable difference between the proportion of poor people in Australia and elsewhere. Generally speaking, rural Australians enjoy a higher socioeconomic status.

## 3. Cost to Recipients

Another major difference between Australia and the United States is that in the state of Australia under study, mental health services are provided free-of-charge to the public. In the United States, all federally funded centres must charge clients for all services obtained (Clayton, 1977). As previous research



has shown, by imposing a cost, the type of clientele and quality of service are intrinsically changed (Tischler, Henisz, Myers & Boswell, 1975).

### Summary

Therefore, despite the similarities, there are features of rural Australia which appear to create significant differences between Australia and other areas of the world. There has been virtually no research to assess the extent to which these unique characteristics affect the delivery of mental health services. The few studies available state plainly that the vast distances, low population density and differing economic conditions make the traditional American models of service delivery both inefficient and impractical. The feasibility of these models relies on relatively high population density combined with markedly shorter distances between centres.

The previous chapters have described the features of rural areas and the unique characteristics of rural Australia. It is clear that the popular United States models of mental health service delivery may not be directly applicable to health care in outback Australia. Any program attempting to provide services to these areas would be faced with unique barriers to delivery and forced to generate novel solutions.

This was the situation facing the Baillie Henderson hospital administrators, whose responsibility it was to provide psychiatric services to large areas of outback Australia. No precedents on the same scale existed, and current models of service delivery were deemed to be inadequate or too expensive.

The following chapter will trace the creation and goal setting of the new model of mental health service delivery. It incorporates the salient features of the North American models, altering and adapting them to suit the unique Australian requirements.

## CHAPTER 5

## THE CREATION AND GOALS OF THE SERVICE

Creation of the Service

In 1979, in response to a State Government directive to provide accessible health services to all people in Queensland, a series of discussions were held between the Executive Committee of Baillie Henderson Hospital and the office of the Director of Psychiatric Services, Queensland Department of Health. These discussions concerned the development of a more accessible psychiatric service to all residents of the Darling Downs and South-West statistical divisions. Both of these areas form part of the designated catchment area of Baillie Henderson Hospital. The hospital was the only psychiatric facility in the region and some people in the catchment area were required to travel over 1200 kms to receive service.

In November 1979, the hospital administrators decided that surveys should be conducted in some of the major centres of the region. The aim of these surveys was to broadly assess the demand for psychiatric services in the regions. As well, it was hoped to identify key people in the communities who may have been critical to the development of any new service, and to assess any logistical problems in providing a service.

Three towns, Dalby, Warwick and Stanthorpe were visited between November 1979 and March 1980 by a psychologist and a senior nurse. The information gathered by this brief pilot survey convinced both the hospital administrators and the Director of Psychiatric Services of the need to offer a service to these areas. It also became obvious that people in the rural towns identified their lack of accessibility to psychiatric facilities and wished to improve it.

In June 1980, the Queensland Government authorised the provision of services direct to rural areas. One month later, in July 1980, Baillie Henderson Hospital began a pilot service to Dalby, a major provincial town 80 kilometres west of Toowoomba. In accordance with hospital policy on team treatments, a multidisciplinary team was dispatched on a one-day-a-fortnight basis.

For two years funding limitations prevented expansion with team members having to be drawn from other work and operating only part-time in the Dalby service. However, in June 1982, a permanent, full-time multidisciplinary team was established and instructed to assess and implement the most effective psychiatric service to rural areas. The newly created team was given the following guidelines :

1. Funding and staffing limitations would necessitate the service being a visiting one.
2. A multidisciplinary team was to be the mode of service .



3. Travel was to be by either motor vehicle or light plane.
4. Inpatient management of cases from rural areas was to be the responsibility of the travelling team.
5. Health Department facilities, where practical, were to be used for service provision to minimize costs.
6. The service was to be evaluated and reassessed on a regular basis.

### Goals

Prior to expansion of the existing service, discussions were held between the author and the hospital administrators to formulate service goals and evaluation questions. This was in keeping with Patton's (1978) requirement of utilization focussed evaluation. The goals generated from these discussions were :

1. To increase access to psychiatric services in the various communities of the south-west Queensland by the provision of a multidisciplinary team specialising in the assessment and management of psychiatric and related problems.
2. To provide direct intervention in the rural areas, for psychiatric and related problems.
3. To provide early assessment and screening of patients admitted to Baillie Henderson hospital in order to minimize inappropriate admissions.

4. To provide better follow-up of patients discharged from Baillie Henderson hospital, and support for their relatives, to reduce the length of hospitalization.
5. To improve communication between Toowoomba based facilities and health care workers in rural areas.
6. To offer consultation, support and education for groups and individuals working with a psychiatric caseload in the rural communities.
7. To determine specific community needs and, where appropriate, establish and support the development of services to meet those needs.
8. To evaluate the service on a regular basis to assess its effectiveness in meeting the stated goals.

The first step in the achievement of these goals was deemed to be the assessment of specific community needs. These needs would determine the type of service delivery to be utilized. The next chapter describes the selection and implementation of the community needs surveys.

## CHAPTER 6

### NEEDS ASSESSMENTS

Needs assessments can be defined as "research and planning activities designed to determine a community's mental health services needs and utilization patterns" (Warheit, Bell & Schwab, 1977, p.4). Most authors agree that needs assessments are an essential part of mental health program planning, implementation and evaluation (Royse & Drude, 1982; Siegel, Attkisson & Cohn, 1977; Stewart, 1979).

Bradshaw (1977), in attempting to operationally define the notion of social need, has conceptualized four types of needs :

1. Normative need - that which an expert defines as need.
2. Felt need - what the population feel they need.
3. Expressed need - a demand for service.
4. Comparative need - an inferred measure of need determined by comparing the characteristics of those receiving services with those not receiving services.

"Need" then, is a term without conceptual boundaries, and which requires an operational definition in each usage.

Assessment refers to a range of different techniques

by which conditions, needs, or resources may be identified (Stewart, 1979). Operationally, these vary considerably and collectively provide different information about needs either cumulatively or independently (Royse & Drude, 1982).

As can be seen, practically any data collection methodology with just about any sample size can be called a needs assessment. The numerous models of needs assessment reflect this diversity of approaches. A brief overview of the most commonly used models will now be provided.

#### Social and Health Indicators Analysis.

Underlying this approach is the assumption that certain descriptive social and demographic characteristics directly relate to the number of residents needing specific mental health services. Commonly the principal categories of such data are measures of social problems like unemployment, poverty and crime rates, suicide, and numbers of single parent families (Hagedorn et al., 1979).

Although widely used because of the easy accessibility of census data and relative inexpensiveness of research, there are serious limitations to this approach. Henggeler (1983) pointed out that census analysis does not permit decisions to be made on specific intervention needs. He illustrated his point by using the example of



identifying single mothers as a high risk group - does this mean they require day care, foster homes, inpatient care or additional nurses?

Royse and Drude (1982) commented that the reliability of census data is not usually known, and that being indirect measures, the data are not easily generalisable.

#### Rates Under Treatment.

Users of this technique assume that current demands for treatment accurately reflect all community needs. The advantages of this approach are its inexpensiveness and reliability of data. Critics claim the technique fails to consider residents who have needs not addressed by current services, and other factors besides demand which may influence need (Henggeler, 1983).

#### Epidemiology.

Epidemiology surveys estimate needs by assessing the distribution of mental illness in the general population (Dohrenwend & Dohrenwend, 1969). This is usually accomplished by administering a mental status questionnaire to a sample of the population, and extrapolating the results to the whole community.

Such direct procedures provide valuable hypotheses about the community and allay many fears regarding poor

reliability and validity (Schwab,Warheit & Fennell,1975). However these methods are invariably quite expensive and time-consuming, and some researchers are now questioning the validity of the survey instruments commonly used with this approach (Royse & Drude,1982; Sallis & Henggeler,1980).

#### Community Resident Surveys.

In this method samples of community residents are asked for their perceptions of the community's mental health needs. Surveys are often door-to-door or by telephone.

A prime advantage of this technique is the public relations generated by performing the survey. It also fulfils the goal of a "community-oriented" service by drawing data directly from community opinions (Weiss, 1975).

Disadvantages lie in the high cost of performing the survey and the difficulties of obtaining a truly randomized population sample (Royse & Drude, 1982).

#### Community Forum.

Diverse groups of community residents can also be invited to attend a meeting to ascertain opinions about community mental health needs. This approach is inexpensive and permits a wide range of ideas to be generated (Hagedorn et al., 1979).

The major shortcoming of this method is that small vocal groups can dominate meetings and bias findings toward their own area of service requirements (Sallis & Henggeler, 1980).

#### Key Informant Surveys.

Surveying key informants aims to assess the perceptions of numerous "gate-keepers" in the community who are either directly or indirectly involved in the delivery of social services. People sought as key informants are typically public officials, clergymen, medical personnel, teachers, police, or health and welfare agency staff. Since these people are both knowledgeable about, and in close contact with, community residents, it is assumed they have a good understanding of the extent of mental health problems.

Most authors recognise this as the most cost-effective survey method yielding valid and reliable results (Hagedorn et al., 1979; Warheit, Bell & Schwab, 1977). Limitations of the method lie in the potential for bias toward the individual or organisational perspectives of those surveyed. Key informants may also not be aware of the needs of people who do not come into contact with their particular agency (Henggeler, 1983; Sallis & Henggeler, 1980).



### Summary

To summarize, it can be seen that various methodologies are available for the assessment of community mental health needs. They vary substantially in terms of monetary cost, effort and generalizability of findings, and ideally a comprehensive needs analysis should incorporate elements of all methods (Hagedorn et al., 1979).

In the present study, cost and time limitations were paramount and so a reliable, cost-effective methodology was sought. Two approaches were chosen:-

- (a) The Social and Health Indicators Analysis; and
- (b) The Key Informant Survey.

The Social Indicators method was chosen because of the wealth of easily accessible census and descriptive data available. A Key Informant approach was selected for reasons of relative inexpensiveness, time efficiency and the good public relations generated by interaction with influential community members. It would have been desirable to adopt all types of needs surveys and by limiting the study to Social and Health Indicators and Key Informants, some valuable data were undoubtedly missed. Unfortunately, cost and time limitations necessitated such a decision. The two methodologies will now be discussed.

### Social Indicators Approach

As described earlier, this method utilized descriptive information on population characteristics to estimate the needs of communities. Few guidelines exist to determine which parameters yield the most accurate predictors of community needs. Researchers



have suggested that this type of evaluation include (a) a description of the geographic and demographic features of the region, and (b) comments on areas of social need like unemployment rates and the number of single parent families (Hagedorn et al., 1979). Hagedorn and his colleagues, in their review of this technique strongly suggested that such indicators were "only rough pointers to geographic areas which should then be examined more closely" (p.118).

The only published study addressing the issue of this methodology in rural areas is that of Husaini and Neff (1980). They identified four parameters as important to assess: (a) the number of single parent families, (b) the proportion of low socioeconomic status residents, (c) the proportion of the aged population and, (d) the ethnic content of the community.

A profile of the area under study will now be presented. The area as a whole will be described and then salient features of individual communities will be discussed.

#### Geographical Area.

The region under study consists of the Darling Downs and South West statistical divisions of Queensland Australia (See Figure 1). It comprises an area of 411,012 square kilometres.

### Population.

Population in the region is 117,701. Of these 47,285 are urban dwellers and the remaining 70,416 are classified as rural by census definition. There are 10 population clusters of greater than 2,000 people, the largest being Dalby with 9,500. With greater than 60% of the area's population statistically classified as rural, the entire region can be defined as a rural area (Yahraes et al., 1976).

Perhaps the most salient statistic to describe this area is population density. Population density for the region is 28 people per 100 sq kms. In comparison, Australia's population density is 190 people per 100 sq kms; Queensland's population density is 143 people per 100 sq kms; and Western Australia, Australia's largest and most sparsely populated state, has a density of 29 people per 100 sq kms.

Thus it can be seen that the rural area under scrutiny is not only an abnormally large mental health service catchment area, but also an extremely sparsely populated one.

Although the area can be statistically defined as rural, it is much more difficult to develop a sociological profile due to the lack of research in the area. A Queensland Government publication

(# ISSN Q157-3640) describes the Darling Downs region as one of the most productive primary producing areas in the world. Wheat, sorghum, barley, maize, millet, panicum, sunflowers, soybeans, cotton, vegetables, tobacco, cattle, sheep and pigs are commercially produced. The Darling Downs yields one-fifth of the State's rural production from only five percent of its rural area.

As well as primary industry production the area has centres of coal production, wine making and natural oil and gas development.

Apart from these purely descriptive references, census data provides additional information which may be used to paint a picture of the sociology of the region (Cameron, 1983). In the region under study, 27.1% of the employed population described themselves as farmers. Overall, 37.5% of the workforce were employed in agriculture or agriculture-related industries. This was the single largest type of employment in the region.

Further examination of the census data, using the guidelines suggested by Husaini and Neff (1980), yielded population indices relating to potential health needs. These can be summarised as follows :



1. Low unemployment rates (4.7%).
2. Few single parent families (5.5% of total families).
3. Few Aboriginal or foreign born residents (8.4%).
4. High proportion of older residents (13.1% aged 60 years and over).
5. Generally low socioeconomic status of residents (67.1% of the households earned less than \$10,000 per annum).

In summary, the region under study is characterized by :

1. A vast, sparsely populated geographical area.
2. A wealth of primary industries.
3. A high proportion of older residents.
4. A significant proportion of the population with a low socioeconomic status.

Such a profile is consistent with that of rural societies described elsewhere (Youmans, 1977). For the purposes of this study, the region will be defined, both statistically and sociologically, as a rural environment.

Salient features of the area will now be described in more detail. Major population centres and their surrounding environs will be discussed.



Toowoomba.

Toowoomba, Australia's largest inland city, is the major population centre servicing the region. It has a population of 74,450 and is situated atop the Great Dividing Range on the eastern-most rim of the Darling Downs.

Toowoomba is the metropolis for the rich granary of the Darling Downs, the fruit growing centres of the Granite Belt and the pastoral expanse of the South West. It provides many well established cultural and educational facilities and is an important commercial and industrial centre.

Toowoomba's large psychiatric hospital, Baillie Henderson Hospital, is the home base of the service being evaluated in this paper.

For the purposes of this study, Toowoomba and its population have been excluded from all analyses. The catchment area for the current study begins some forty kilometres from Toowoomba.

Dalby.

Eighty kilometres west of Toowoomba lies Dalby. It is the hub of four major inland highways and the state's largest receiving centre for wheat, barley

and sorghum. Dalby also boasts a burgeoning local agricultural machinery manufacturing industry.

Dalby town has a population of 9,580 people with the surrounding catchment area having a total population of 46,215. Due to its economic and industrial importance, Dalby tends to be the focus of a large number of services and facilities for the area.

Local health workers describe the Dalby population as a transient one. Large numbers of poor, unemployed labourers move through Dalby seeking seasonal work on properties in the area. There is a large caravan population living in two parks in the town.

Despite the large proportion of low socioeconomic residents, Dalby and district have the wealthiest population in the area, with 2.8% of the population earning greater than \$26,000 per annum.

In summary, Dalby is the commercial and social centre of the Central and Western Darling Downs. It is the largest town and district in the study and has, proportionally, the wealthiest population.

Warwick.

Warwick, 84 kilometres to the south of Toowoomba, is a city of historic churches and schools. Known as the Rose City, it is renowned for its picturesque countryside, beautiful parks and the general neatness of the town. With a town population of 9,540 and a district population of 26,458, Warwick is the major population and commercial centre for the southern Darling Downs.

Local health workers regard Warwick as a retirement town and the high proportion of residents over 60 years old (15.7%) supports this notion. Due to the influx of several major companies into the town, Warwick also possesses the most comprehensive array of services and facilities of any town in the study.

Stanthorpe.

Sixty kilometres south of Warwick, the lush pastures of the Darling Downs rise to the rocky heights of the Granite Belt. Stanthorpe (population 3,966) is the commercial centre of this fruit growing and wine making district.

The catchment area population of 11,602 contains a disproportionately high percentage of foreign-born

people (12.3%). Stanthorpe has the second largest Italian community in Australia, as well as large numbers of Germans and Greeks.

Stanthorpe also has the highest proportion of unemployed workers of any town in the study. The large number of unemployed (8.3%) is thought to result from the types of industries in the area. Land is relatively cheap and easily subdivided, and many poor and migrant families have purchased tiny farms. The local climate makes small scale farming a difficult proposition and families are often unable to cope with the financial burden of poor seasons. As well, a large contingent of seasonal workers flow through the town seeking fruit picking and other casual work.

Churches, particularly Roman Catholic ones, are a prominent focus in this community. Church leaders are well known public figures whose opinions are sought on many matters.

A notable feature of the Stanthorpe community is the lack of town based services. The majority of health, education and government services are based in Warwick and provided on a part-time basis.



In summary, Stanthorpe is a small, multiracial community in the heart of a rich fruit growing area. It is characterised by a high number of unemployed workers, a lack of locally based services and high profile churches.

#### Roma.

At the centre of southern Queensland's rolling sheep and cattle lands, lies the township of Roma. It is situated 344 kms west of Toowoomba and boasts a small oil refinery and the state's oldest operative winery. The town is an important railhead for the beef, wool and grain industries of the area.

Roma has a town population of 5,704 people and a district population of 12,484. This district population is spread over an area of 58,774 sq kms, giving a density of only 21 people per 100 sq kms.

Thus Roma is a small population centre in a vast expanse of sparsely populated country. Being so small and distant from the larger cities, Roma has only limited health and welfare resources. It is the base of the flying surgeon and the Children's Services Department, both of which are responsible for servicing the remainder of western Queensland.

Goondiwindi.

Situated 282 kms south-west of Toowoomba, Goondiwindi, the Inland Gateway to Queensland, lies on the New South Wales - Queensland border. Although cattle and cotton are important industries in the area, the major focus of Goondiwindi is as a rest stop for interstate travellers. The Macintyre River bridge, leading into Goondiwindi, is crossed by over a thousand vehicles per day.

Goondiwindi town has a resident population of 3,576, with a total of 10,986 people living within the 44,971 sq kms catchment area.

Goondiwindi is characterised by its emphasis on tourism, particularly accommodation. Another feature of the town is a notable lack of health and welfare agencies based permanently in the town. Most government services are provided on a travelling basis. Several large towns are near to Goondiwindi but across the state border, and so there is little utilization of their facilities or sharing of services. There is also a large aboriginal reserve ten kilometres from Goondiwindi, across the border.

Charleville.

Just over 600 kms west of Toowoomba, Charleville appears as the last outpost of civilization in the outback.

The town has a population of 3,523 but services an area of 232,624 sq kms. With a district population of only 9,956, population density for the region is a meagre 4 people per 100 sq kms.

Called the "Gateway to the Outback", Charleville is the receiving centre for the beef and wool industries of south west Queensland. It is also the base and transmitting point of the School of the Air, and one of three bases for the Royal Flying Doctor Service.

Charleville projects the image of a traditional outback town - broad, dusty streets, numerous hotels with wide verandahs and cheerful friendly residents. It has the highest proportion of Aborigines of any area under study (7.1% of the population), and also the most unmarried people (31.4%) and single parent families (9.6% of families). Charleville base hospital is the only base hospital for the remainder of the south west area.

Like Roma, Charleville's isolation has greatly limited the available services. Most are provided on a visiting basis, usually less frequently than Roma.

### Summary

The preceding discussion has shown that the area under study can be reliably identified as a rural environment. Vast distances, a low population density and a predominance of agriculture based industries characterize the setting. The six rural communities described share some common features but each possesses unique assets and problems.

Several areas of mental health service needs have been identified in earlier chapters. The following section will describe how a Key Informant needs survey was used to elaborate and clarify these areas of service requirement.

### Key Informant Needs Survey

Key Informant needs surveys were conducted prior to the introduction of a service in four communities - Roma, Stanthorpe, Goondiwindi and Charleville. Time and funding limitations precluded comprehensive needs surveys being completed in Dalby or Warwick. All surveys were carried out using the same format.

### Method

#### Subjects

Subjects were chosen in a pyramidal fashion. Initial survey recipients were identified by (a) previous contacts



from a pilot survey, (b) pre-survey discussions with welfare agencies already servicing the town, and (c) literature based lists of standard gate-keepers. When surveyed, each recipient was asked to suggest people whom they felt would be appropriate to service surveys. These people were then contacted, and so on. Recipients of surveys included hospital staff, general medical practitioners, ministers of religion, community health nurses, pharmacists, policemen, school teachers, Blue Nurses, community social workers, Aboriginal health workers and representatives of other visiting services such as Department of Children's Services, Department of Social Security and the Commonwealth Employment Service.

Full details of survey recipients appear in the Results section.

#### Procedure

Once key informants were identified, they were telephoned and an appointment was made to see them in their usual place of work, or at home. They were interviewed by one or more team members who explained the concept of the service and distributed survey sheets.

Each survey recipient received a folder which

contained (a) a sheet introducing and explaining the purpose of the survey, (b) a sheet of examples of how to complete a survey form, and (c) six blank survey forms. Examples of these sheets are provided in Appendix A.

To participate in the survey, recipients were asked to record details, on the provided sheets, of each psychiatric or related problem they encountered in a ten week period. The information was to be recorded under the following categories :

1. The date of first contact with the problem during the survey period. If the same client was seen on different occasions with different problems, each was to be recorded separately.
2. The nature of the problem. This category was deliberately ambiguous. Recipients were encouraged to include any condition they perceived as a problem.
3. The action taken. Key informants were encouraged to comment on what resources they utilized in attempting to solve the problem. It was intended that this category would provide information on existing pathways to care, and levels of skill in dealing with mental health problems. A measure of

medication prescription rates was also expected.

4. A decision on whether a visiting psychiatric team would have been contacted, either by phone, letter or referral, had such a service been available.

5. If the team was contacted, what expectations of service were generated.

All survey forms were clearly marked Confidential. Recipients were told that no names needed to be included on the forms. Any written comments about the proposed service were encouraged.

Each recipient was contacted five weeks later by telephone, or in person, and progress of the survey was discussed. At the end of the ten week survey period the forms were collected in person by a team member. During this interview, survey recipients were asked to comment on their perceptions of the community's needs and on their recommendations for developing a comprehensive psychiatric service.

### Results

For convenience of handling, survey recipients were divided into homogenous categories, namely :

1. Hospital staff.
2. General Medical Practitioners.
3. Community Health Staff.
4. Ministers of Religion.
5. Miscellaneous others.

The latter category contained respondents such as police officers, Blue Nurses, pharmacists, teachers and Department of Children's Services representatives.

The survey distribution and return rates for the four towns can be seen in Table 1. The overall number of problems recorded and the subsequent expected referral rates can be found in Table 2. There were an average of 115.5 problems recorded per town with an expected referral rate of 78.3%. The types of problems recorded were classified into broad diagnostic categories by two independent rates. These categories were based on the International Classification of Diseases - Ninth Edition (World Health Organization, 1977). Ranked order and percentage range of the problem can be seen in Table 3. Overall, depression-related problems were ranked first, accounting for 18.2% of all problems.

### Discussion

Overall the Key Informant needs surveys achieved the goals for which they were designed. The obtained data permitted evaluation of several factors believed likely to affect service provision :



Table 1

Needs Survey Distribution and Return  
Rates from Four Towns

	Roma	Stanthorpe	Goondiwindi	Charleville	Total
No. of Surveys Distributed	42	24	21	22	109
No. of Surveys Returned	33	16	15	14	78
Return Rate (%)	78.5	66.7	71.4	63.6	71.6

Table 2

Number of Problems Recorded and Expected  
Referral Rates from Needs Surveys  
in Four Towns

	Roma	Stanthorpe	Goondiwindi	Charleville
<u>Problems Recorded</u>				
Hospital Staff	64	14	-	14
General Practitioners	36	56	6	11
Community Health Staff	39	15	40	19
Clergy	28	8	24	3
Miscellaneous	<u>41</u>	<u>24</u>	<u>9</u>	<u>11</u>
TOTAL	208	17	79	58
Average Number of Problems per Respondent	6.3	1.1	5.3	4.1
<u>Expected Referral Rates (%)</u>				
Hospital Staff	93.3	85.7	-	85.7
General Practitioners	47.2	55.4	100	54.5
Community Health Staff	100	100	95	84
Clergy	64.3	100	62	66.7
Miscellaneous	<u>97.6</u>	<u>87.5</u>	<u>85.9</u>	<u>100</u>
TOTAL	83.7	74.4	84.8	81.0

Table 3

Ranked Order of the Most Frequent  
Problems Recorded in Needs Survey

Rank	Roma	Stanthorpe	Goondiwindi	Charleville	Total
1	Depression	Anxiety	Marital	Alcohol	Depression
2	Alcohol	Family	Alcohol	Marital	Alcohol
3	Marital	Psychosis	Depression	Depression	Anxiety
4	Anxiety	Depression	Family	Anxiety	Marital
5	Family	Marital	Anxiety	Child	Psychosis
6	Psychosis	Alcohol	Psychosis	Psychosis	Family
Range (%)	19.3-6.1	13.6-7.1	16.1-6.1	20.9-6.0	18.2-6.3

1. Likely sources of referrals.
2. Expected numbers of referrals.
3. Key informants who may benefit from support, due to a high psychiatric caseload.
4. Key informants who may be unsupportive or antagonistic toward the introduction of a new service.
5. Key informants' expectations of the proposed service.
6. An overall "feel" for the type and degree of need in each town.

The data from the needs assessments were not of a form to permit meaningful rigorous analysis, rather they were utilized to provide information about likely attitudes and trends within the communities. Stated needs, as determined by the surveys, will be compared to actual utilization of the service later in this thesis. Salient features of the surveys will now be discussed town by town.

#### Roma

The return rate of surveys in Roma was the highest of any town surveyed. This was interpreted as indicating the enthusiasm of the local caregivers for the provision of a new service. Roma had never received any form of



psychiatric service, and numerous people expressed their support of any additional services the town may be offered. In particular, the hospital matron was an extremely keen supporter of the concept, providing much help in the survey distribution and collection, and in generating interest in the service concept. Although Roma possesses more caregivers than other centres surveyed, when informed of the purpose of the survey, several people, peripheral to the caregivers, requested to be included. No one was excluded from the survey as all information obtained was regarded as valuable.

The large number of problems recorded (208) is difficult to interpret. It is unclear whether this represents a greater than average need or is simply an artifact of the larger number of survey recipients. An impression gained when collecting the surveys was that the same problems had been recorded by several of those surveyed.

An interesting point of note is the inclusion of some problems, not usually associated with psychiatric or related disorders. Specifically, two survey recipients identified stealing, and one described stuttering as psychiatric problems. This was seen as indicative of the survey recipients' desire to generate

as much illustration of their needs as possible.

#### Stanthorpe

Unlike the results from other towns, the grouping of caregivers into homogenous categories produced some unusual results. The three general medical practitioners who completed the survey (of the seven contacted) encountered almost as many problems as the other groups combined. However in contrast, they also showed the lowest potential referral rate to the proposed service (55.4%). This trend suggested that these three G.P.'s may be a valuable local resource to assist in the treatment of psychiatric cases. As well they may be a target group who would benefit from additional support from the service.

Another unusual feature was the disproportionate number of different types of problems identified by the groupings of caregivers. That is, different types of health care workers seemed to be encountering different types of problems, namely :

1. Hospital staff - alcohol.
2. General Medical Practitioners - anxiety disorders.
3. Community Health Staff - depression.
4. Ministers of Religion - marital problems.
5. Miscellaneous Others - social and family difficulties.

This result may indicate that the different agencies were servicing a different type of clientele, a trend not seen as clearly in other communities. Alternatively, the data may be showing what types of disorders were regarded as mental illness by the different caregivers.

Stanthorpe was the only community surveyed which possessed a Lifeline representative. In this case, she was an enthusiastic and active member of the community and may have been responsible for organising and demarcating the existing service facilities' clientele.

Another point note of note is that Stanthorpe had the lowest expected referral rate (74.4%), that is, the number of psychiatric and related cases encountered by local services who would subsequently be referred to the proposed service. This finding seemed to reflect the independence and competence of the three general practitioners mentioned earlier.

#### Goondiwindi

From the first contact, it became obvious that the town of Goondiwindi was resistant to the proposed service. Almost every person surveyed expressed distrust and suspicion of the team members and the



proposed service. It was found later that a similar service had been mooted and begun by Intellectually Handicapped Services two years previously. Despite the community's enthusiasm, the service had been ceased abruptly and caregivers blamed for their lack of support. Thus, the community remained suspicious of any new proposals.

In addition to this, one general practitioner, a prominent and influential member of the community, was vehemently opposed to the introduction of a public medical service into the town. This individual was also a member of the Goondiwindi Hospital Administration Board and was responsible for severely limiting the hospital staff's negotiations with the team members. No hospital staff completed the needs assessment.

Community health staff encountered over half of the total number of problems identified. As well, they were one of the few agencies supporting the proposed service. The survey figures may have illustrated their high caseload or been an indication of their keenness to promote the service.

It was extremely difficult to assess the needs in Goondiwindi due to the poor response rate of the influential gatekeepers in the town. Although sufficient problems were identified to justify



provision of a psychiatric service, it was feared that needed support would not be forthcoming.

#### Charleville

The needs assessment in Charleville was characterised by a lack of interest and poor response rate from general medical practitioners and local hospital medical staff. Outlying medical practitioners were extremely keen and made up the bulk of the returned surveys from this group.

Reasons for this finding are difficult to assess. It may be that the large distances from major centres have led to the doctors needing to become competent in many fields, and subsequently resenting the impact of specialist services. An alternative explanation is that the staff in Charleville were often responsible for enormous catchment areas and were forced to do lots of travelling. It was pointed out to survey collectors that in all probability the doctors simply did not have time to complete the survey.

Another unusual result was the poor response rate of members of the clergy. It was postulated that this resulted from the difficulty in contacting many of these people in person. Like the medical practitioners, the ministers were servicing vast areas and spent large proportions of their time travelling. It was difficult to

maintain regular contact with this group.

### Summary

There are some limitations of this approach to needs assessment. The format of the surveys, in particular the emphasis on anonymity of problems, makes it possible that the number of problems recorded is an overestimate of the true incident. The same problem could conceivably have been recorded by two or more recipients (e.g. local minister and general medical practitioner) which would inflate the total. Also when examining the types of problems, the total number of problems again may be an overestimation if recorded problems contain more than one component (e.g. marital plus alcohol abuse).

Nonetheless, the methodology used was found to be efficient and economical, and provided data useful to the service providers. In addition to the raw data, the survey also served as an effective public relations exercise and encouraged face to face contact between local gatekeepers and service providers.

As can be seen by the average number of recorded problems per respondent (see Table 2) the rate varies from town to town. This variation was interpreted as representing varying interest levels on the part of the respondents. In the more distant towns, their desire to have the service was higher and hence, they identified more problems requiring assistance.

Having established an index of the perceived needs throughout the catchment area, the next chapter will describe how the new model of mental health service delivery functioned in attempting to meet these needs.

SECTION C

IMPLEMENTATION OF THE SERVICE

## CHAPTER 7

## OPERATION OF THE SERVICE

In June 1982, a permanent full time multidisciplinary team was appointed by Baillie Henderson Hospital and given the responsibility of mental health service provision to south west Queensland. The decision to implement a travelling team was a bureaucratic decision by the hospital administrators based on their perception of the most effective mode of service delivery. Needs survey data was discussed by the new team (including the present author) and Baillie Henderson Hospital executive members, and a decision was made to provide a direct service to six communities in the region. The Dalby clinic was already operating and five other clinics were planned to start over the next two years. This expansion occurred during the period of the present study.

The results of the needs survey, funding limitations, and the experience of the Dalby clinic led to the decision to service the communities using a travelling clinic approach. Each town was visited on a regular basis, either fortnightly or monthly. One-day clinics were held in each centre. Travel to the clinics was by road to the nearer towns, and by aeroplane to the distant ones.

The travelling team consisted of a psychiatrist, psychiatric registrar, clinical psychologist, social



worker and psychiatric nurse. All team members travelled to each clinic. An occupational therapist, speech therapist, physiotherapist and recreation officer, based at Baillie Henderson Hospital, were available on a consultation basis. No permanent staff were based in any of the rural communities.

The travelling service performed three major functions, namely :

1. Providing a psychiatric outpatient clinic in each of the rural centres.
2. Providing a twenty-four hour consultation service to medical and welfare workers.
3. Offering an educational service, providing interested individuals and community groups with advice and information on psychiatric and related subjects.

Each of these will now be discussed in more detail.

#### Outpatient Clinics

All clinics were held in the consulting rooms of local hospitals. Appointments could be made via the hospitals' Outpatient Department or through local Community Health staff.

Referrals to the clinics were accepted from any source. Patients were not screened in any way prior to assessment. All new referrals were met at the clinic

by the psychiatric nurse who completed a basic demographic information questionnaire with the patient. Each patient was then assessed using a standardised interview format to obtain a comprehensive personal and psychiatric history. This assessment was done by any team member.

As well as assessing new referrals, team members were responsible for treating continuing patients. Each team member provided treatment in their area of professional expertise, as well as fulfilling both generalist therapist and co-therapist roles. Allocation of patients to particular therapists or therapies was made at a weekly team meeting.

#### Consultation Service

The service provided the opportunity for local health workers to consult with professionals about mental health problems, on a twenty-four hour basis. Local caregivers were encouraged to contact team members when the clinic was operating in their town. If this was not feasible, team members could be contacted at other centres, or Baillie Henderson Hospital staff telephoned 24 hours a day for advice.

Being a visiting service, the team functioned primarily in a consultancy role. Although some clients

received therapy from the team members, local resources were utilized wherever possible to assist with, or take over, management of the case. Local referral sources were notified of each client contact, and made cognizant with recommendations or therapies used by the team. Health workers were encouraged to be involved with any of their clients receiving therapy. Regular contact was maintained with all key personnel in the areas.

### Education Service

Primary prevention was regarded as a priority and so all team members provided lectures, seminars and educational material on request. Various professional and para-professional groups attended seminars on a wide range of topics.

The service differed from the published North American travelling team models in the following ways:-

1. A wider variety of professionals attended each clinic.
2. Services were provided regularly, not on dependent varying needs.
3. No permanent staff existed in any community.
4. The areas serviced and distances from pre-existing facilities were far greater than any previously published study.
5. Educational and consultation services were provided in addition to outpatient clinics.

As can be seen from the preceding descriptions, the service under study operated differently to all other models of mental health care. These significant differences led to difficulties identifying the critical aspects of the new service. The following section describes the rationale of the research questions investigated in the present study.

### Rationale of the Research Questions

It is well recognised by major contributors in the field of mental health evaluation that there is no single



type of assessment which meets all the needs of a mental health outreach program (Berry & Davis, 1978; Clayton, 1977). The usual procedure is to adopt a shotgun approach and direct a variety of techniques at a range of targets. However such an approach had led to dissatisfaction of planners and decision makers, and calls for greater consistency and reliability in evaluation methodology (Armstrong, 1977; Flax et al., 1979).

Thomson and Bell (1969) identified two principal components in community based research; the program centred and the sociological aspects. They advocate, as do many subsequent authors, that program centred evaluation provides the most useful and reliable data for decision makers.

Hagedorn and his colleagues (1979), in their manual of evaluation techniques, believed the most important assessment of a community program is the way in which the services are utilized. They recommended examining variables such as (a) admission rates to community facilities, (b) patient characteristics like diagnosis, number of visits and treatment outcome, (c) referral pathways, (d) how staff time is spent, and (e) admission rates to the nearest state mental hospitals. Despite the potential multiple causality,



these indices are regarded as the best measures of the effectiveness of a community facility.

Although acknowledging Hagedorn et al's position, Sheps and Bachar (1981) warned of the complacency which can beset rural program evaluators, namely, to be satisfied with evidence of just improved access and stability. The authors accepted these as admirable goals but suggested it was more accurate to assess the impact upon the mental health of the population.

They argued that the distinction between direct evidence of improvement in mental health status and the patients' level of satisfaction with the service, requires special attention because the two are not directly correlated. From a planning or policy point of view, it is desirable to achieve a maximum of both. Sheps and Bachar believed that as well as measuring utilization rates, it is essential to assess client satisfaction and community impact as well.

The present study will evaluate the effectiveness of a travelling psychiatric service from a program centred viewpoint. Four areas of evaluation will be considered, namely :

1. Utilization of the service.
2. Client satisfaction.
3. Effect on the rural community.
4. Impact on admissions to Baillie Henderson Hospital.

Each of these areas will be discussed as a separate

study. There will be a brief introduction of the rationale for assessing that particular aspect of the service. The method of evaluation and subsequent results will then be presented. Finally the implications of each evaluation aspect will be discussed. A discussion of the implications and outcomes of the total study will be presented in the final chapter.

## CHAPTER 8

### UTILIZATION OF THE SERVICE

Few published studies have reported methodology to assess the utilization of community health services in rural areas. Most research has surveyed samples of the general population to obtain data on the prevalence of mental illness in non-urban communities (Comstock & Helsing, 1976; Connell, Irvine & Rodney, 1982; Flax et al., 1979). Of these which do examine utilization rates, only three report data relating to travelling psychiatric clinics (Ben-Tovim, 1983; Kreyes, 1968; Miles, 1980). Data from studies of utilization of permanent facilities will be briefly considered, followed by an discussion of research from travelling clinics.

Hargreaves and DeLay (1979) stated that "the basic tool for examining service utilization is a statistical summary of client characteristics" (p.109). They described the record keeping procedures developed for a rural mental health centre, but unfortunately no data were available from their program.

Rich (1980) reported on the types of patients seen by a private psychiatrist operating in a rural area of the U.S.A. He found that 76% of total referrals could be regarded as having a psychiatric diagnosis. The

most common diagnoses were situational crisis (24%), Briquets syndrome (18%), organic brain syndrome (10%) and primary affective disorder (8%).

In his discussion of this data, Rich commented on the high proportion of situational reactions referred. He postulated that the lack of services in rural areas often led to situational crises being dealt with by psychiatric services because there was no one else to do it. Rich warned future services to anticipate a high proportion of this type of client.

The first paper to discuss the utilization of a travelling psychiatric clinic, concerned two clinic locations in rural areas of Manitoba, Canada (Kreyes, 1968). Both clinics were serviced by two psychiatrists from a nearby psychiatrist hospital either daily or twice weekly. No full-time staff served the clinics but close liaison with local caregivers was maintained. The two psychiatrists interviewed an average of 165 new patients per year.

Kreyes reported the following incidence of disorder over a five year period : Neuroses (28%), schizophrenia (13%), adolescent problems (12%), intellectual handicap (8%) and personality disorder (6%). Overall 34% of patients were given a diagnosis of psychosis. The author found that patients with a



diagnosis of personality disorder had the fewest number of interviews. Neurotics had the greatest number of interviews per patient with an average of over 7.5. The average number of interviews per patient was 3.9.

Kreyes did not discuss the implications of his results, other than to state that "the functioning of the service has been encouraging" (p.156).

Miles (1980) described the impact of a hospital based outreach psychiatric service to Dawson Creek, British Columbia. The project consisted of two psychiatrists from a large psychiatric hospital making monthly and three-day visits to the rural community. Although the focus of the visits was education and consultation, direct treatment was also provided.

The author reported utilization rates of 244 patients being seen in initial consultations over a two year period. A further 104 were seen in follow-up visits over the same time. About 20% of the patients were children with the remainder aged between 18 and 83 years. Mean age was 37. 32% of the sample were male and, of the adults, nearly half had a primary diagnosis of depressive illness.

In his evaluation of the travelling service, Miles, whilst quoting utilization figures, did not discuss their implications for the functioning of the program. Rather he simply reported the data and left it to the reader to make comparisons or decisions.

In contrast, Ben-Tovim (1983) compared his utilization data from rural clinics in Botswana to attendance figures from mental health facilities in England. He observed referral rates of 1,082 people per 100,000 in the African population, compared to 415 new patients per 100,000 in England. Ben-Tovim interpreted these data as showing a significant need for an increase in psychiatric services to Botswana.

He also provided information about the number and type of patients seen during a year. Thirty-three new patients were treated, with the major diagnostic groups being epilepsy (33%), neuroses (27%) and schizophrenia (21%). Of those 91 patients already receiving treatment, the major diagnoses were schizophrenia (45%) epilepsy (26%) and alcohol dependence (8%).

The author explained the unusually high incidence of schizophrenia and epilepsy by saying that these disorders were identified as clinical priorities by the program directors. As well, the high proportion of

appropriate referrals was thought to be due to local health care workers screening all referrals to the visiting psychiatrist.

Two other variables relevant to the study of utilization rates are (a) distance of the centre from the nearest psychiatric facility, and (b) the number of community agencies or services already operating within the town (Burvill et al., 1984).

Diener and Young (1961) found that distance was not a significant factor in people seeking psychiatric help. That is, they reported that as distance from a psychiatric facility increased, there was no change in attendance rates.

A replication study used a larger sample of patients and increased the distance studies to include patients living over 32 kms from the facility (Dworin et al., 1964). They found distance to be significantly related to attendance, such that as distance increased, the attendance rate at the psychiatric clinic decreased.

Several other studies have replicated these results and discovered the critical distance for aftercare attendance to be about 50 kms (Cohen, 1972; Prue et al., 1979). Beyond that distance, utilization rates drop below 20%.



Jones (1983) provided some anecdotal support for this phenomenon in Australia. He observed that service utilization for any type of facility decreased dramatically as distance increased. Unfortunately he presented no data to support this claim, and offered no basis for comparison.

Although the evidence is not definitive, these studies support the notion that distance from psychiatric facilities negatively affect help-seeking. Thus it can be assumed that as the distance of communities from permanent psychiatric facilities increases, the chance of a patient seeking help from the distant centre decreased. It would therefore be logical to assume that, as rural towns increase in distance from Toowoomba, patients in these towns would be less likely to have sought, or received, treatment prior to the introduction of the travelling clinic. The present study proposes that utilization patterns may vary as distance from Toowoomba increases, because of the reduced likelihood of patients seeking help from other facilities.

The second variable of interest when assessing utilization rates is the number of agencies or services already operating in the community. No research is available to describe the relationship between



utilization rates and number of pre-existing services, but several authors have alluded to the influence of alternative services (Bachrach, 1983; Jones, 1983). They propose that as the number of services increase, so do the alternative pathways to care. More specifically it is suggested that psychiatric problems may be dealt with by non-psychiatric services (such as welfare agencies, churches or general practitioners) if such facilities exist. The greater the number of alternative caregivers, the less chance of attendance at a psychiatric clinic.

Thus it is proposed that utilization patterns may differ as the number of pre-existing welfare-related services increases.

The present study will examine utilization rates for the entire catchment area of the South-West Queensland and Darling Downs Regional Psychiatric Service. As well, the current study will assess changes in utilization rates as a function of distance of the communities from Toowoomba, and number of pre-existing health and welfare services.

#### Method

Information on many parameters of the travelling team's functioning was recorded by team members at the clinic sites and collated by the researcher and

psychiatric nurse upon return to Toowoomba.

As each new patient arrived at the clinic, a standard demographic statistical sheet was completed by the nurse. An example of this sheet can be found in Appendix B. The diagnosis section of the sheet was left blank, being completed at the next team meeting. At this meeting, the team member who assessed the patient presented the case details to the meeting and a consensus on diagnosis was reached. Primary diagnosis could be changed at a later point if necessary.

At each clinic, attendance sheets were completed by each team member. These sheets contained details about clients' attendances, non-attendances, duration of contact and referral source. Records were also kept of the number and topic of talks and seminars given, consultation phone calls made or received, and all requests for information from caregivers in the rural areas.

Further data were collected when a patient was discharged from the service. Details of the number of weeks in contact, number of contacts, number of non-patient contacts, (i.e., the number of contacts with the referral source, or relevant agency,

concerning the patient), treatment received, reason for discharge, and place of onward referral were recorded on special forms. An example of the recording sheet can be seen in Appendix C.

### Results

The first travelling clinic was established in Dalby in July 1980, and data were collected from this time until 31st December 1984. Services to the five other communities visited were commenced at various times during this period as shown :

- |                |   |                                     |
|----------------|---|-------------------------------------|
| 1. Dalby       | - | 1.7.1980                            |
| 2. Warwick     | - | 15.9.1982                           |
| 3. Roma        | - | 25.1.1983                           |
| 4. Stanthorpe  | - | 1.6.1983                            |
| 5. Goondiwindi | - | 20.9.1983 and ceased on<br>4.9.1984 |
| 6. Charleville | - | 27.6.1984                           |

### New Patients Assessed.

There were 762 new patients assessed at the six clinics during the five years under study. These patients generated 2,668 contacts. A breakdown of these data by individual clinics is presented in Table 4. On average, there were 56.4 new cases assessed at each clinic per year of operation. The range was from 29 to 89. There were 609 missed appointments, a did-not-attend rate of 18.6%.





Of the clients seen, 466 were female (61.1%) and 296 were male (38.9%). The age, marital status and occupational status of all clients can be seen in Tables 5, 6 and 7, respectively.

#### Diagnosis.

Diagnosis was based on the Manual of the International Classification of Diseases - Ninth Edition (World Health Organization, 1977). This classification system was used because the available computer programs required input data in this format. For ease of presentation the diagnostic categories have been combined into six groups (See Table 8). Table 9 presents a summary of the diagnosis of all admissions to the service in each six month period.

#### Referral Service.

Local hospital staff and general medical practitioners provided 62% of referrals to the service. Table 10 shows the referral rates in each town. Table 11 compares the proportion of problems reported in the needs surveys with the actual percentage of patients referred from each source.

Twenty-eight seminars were presented by team members since June 1982. This averaged to only two seminars per clinic per year of operation.

Table 5

Age and Sex of New Patients Seen at Clinics  
1980-1984 (%)

Age (Years)	Sex		Total (N=762)
	Male	Female	
0-14	5.3	3.9	4.5
15-19	8.8	8.0	8.3
20-24	14.1	9.2	11.1
25-29	10.3	12.4	11.6
30-34	13.4	11.2	12.0
35-39	7.3	12.4	10.4
40-44	12.6	7.8	9.6
45-49	5.3	9.0	7.6
50-54	4.6	8.3	6.8
55-59	3.4	4.1	3.9
60-	14.9	13.8	14.2
Total	38.9	61.1	100

Table 6

Marital Status and Sex of New Patients  
Seen at Clinics 1980-1984 (%)

Marital Status	Sex		
	Male	Female	Total (N=762)
Single	45.8	19.2	29.5
Married/De facto	41.6	55.8	50.3
Widowed	0.8	5.8	3.9
Separated	6.9	7.0	7.0
Divorced	5.0	12.1	9.4

Table 7

Occupational Status and Sex of New Patients  
1980-1984 (%)

Occupational Status	Sex		
	Male	Female	Total (N=762)
Employed/Employer	28.6	16.5	21.2
Unemployed	32.1	9.5	18.3
Home Duties	—	47.3	28.9
Student	3.8	4.4	4.2
Pensioner/Retired	32.1	19.7	24.5
Other	3.4	2.4	2.8



TABLE 8

## Diagnostic Groupings Based on ICD-9 Categories

Diagnostic Category	ICD-9 Diagnoses
1. Organic Psychosis	Senile/Presenile Organic Psychotic Conditions (290) Alcoholic psychoses (291) Drug Psychoses (292) Other Organic Psychotic Conditions (293, 294)
2. Psychosis	Schizophrenic Psychoses (295) Affective Psychoses (296) Paranoid States (297) Other Psychoses (298, 299)
3. Anxiety	Neurotic Depression and other Depressive Disorders (300.4, 311) Other Neurotic Disorders (300.0-300.3, 3, 300.5-300.9) Stress and Adjustment Reactions (308, 309)
4. Personality	Alcohol Dependence or Abuse (300, 305.0) Drug Dependence or Abuse (304, 305.1-305.9) Other Personality Disorders (301, 302, 307, 312)
5. Marital/Family	V codes
6. Other	Non-Psychotic Disorders of Childhood (313, 314, 315) Non-Psychotic Mental Disorders following Brain Damage (310) Conditions associated with Physical Conditions (303, 305.0) Mental Retardation (317.9-319.9) No Psychiatric Diagnosis (V71.0) Other (320)

Table 9

Diagnostic Groupings of New Patients  
(1980-1984)

Diagnosis	N	%
Organic	38	5.1
Psychosis	136	17.8
Anxiety	329	43.2
Personality	109	14.3
Marital/Family	91	11.9
Other	59	7.7
Total	762	

Table 10

Referral Sources in Each Rural Town (%)

	Dalby	Warwick	Stanthorpe	Roma	Goondiwindi	Charleville	Total
Local Hospital	31.4	32.2	41.3	53.8	33.3	41.4	37.1
General Practitioners	22.3	19.7	31.4	23.5	30.6	55.2	24.9
Community Health Staff	13.9	19.1	6.6	3.4	11.1	3.4	11.8
Clergy	0.4	0.5	-	1.7	2.7	-	0.7
Baillie Henderson Hospital	21.5	16.4	9.1	5.9	13.9	-	14.7
Self	4.4	6.6	-	1.6	5.6	-	3.7
Other	6.1	5.5	11.6	10.1	2.8	-	7.1

Table 11

Comparison of Problems Recorded in Needs Survey  
with Actual Referral Rates

Group	Problems Reported in Needs Survey (%)	Actual Referrals (%)
Local Hospital Staff	16.7	37.1
General Practitioners	22.8	24.9
Community Health Staff	28.8	11.8
Clergy	13.9	0.7
Miscellaneous	17.8	25.5



No statistical analyses were performed on these data to examine differences between towns. It was believed that the large variations in operating time at each clinic would make meaningful comparisons difficult to achieve. Utilization rates for each community varied markedly at the commencement of the clinics and in some centres, insufficient time had elapsed to allow this phenomenon to stabilize. This issue will be dealt with further in the discussion section.

#### Discharged Patients.

There were 539 patients discharged from the service in the five years of the study. This represented 70.6% of the patients assessed during that time. A breakdown of the characteristics of the discharge data can be found in Table 12. A more detailed analysis of the variables associated with the discharged patients was obtained by using the data as input in several discriminant analyses.

#### Discharge Variables x Clinic.

The first discriminant analysis sought relationships between patient characteristics and the clinic at which they were seen. Overall group differentiation was significant; Wilks Lambda was .937,  $F(20,1759) = 1.754$   $p < .01$ . One discriminant function was significant. The percent of total

Table 12

Service Characteristics of Discharged Patients  
(1980-1984)

---

Total Number of Discharges	539
Average Duration of Contact	8.8 weeks
Average Number of Patient Contacts	2.8
Average Number of Non-Patient Contacts	2.1
Type of Service Received (%)	
Assessment	26.0
Individual Therapy	36.1
Marital Therapy	10.7
Family Therapy	3.8
Drug Therapy	23.4
Reason for Discharge (%)	
Left - Contacted Team	10.9
Left - No Contact	23.6
Problem Resolved	33.5
Problem Not Resolved	32.0
Patient Referred Elsewhere	25.2%

---

variance,  $\chi^2$  tests and group centroids are set out in Table 13. (Full details of this, and all other analyses can be seen in Appendix F).

Examination of the correlations of the variables with the discriminant function suggests the dimension is represented by a combination of all four variables. Number of contacts and number of non-patient contacts are positively correlated and number of weeks and likelihood of people referred elsewhere are negatively correlated. A plot of the group centroids on these dimensions is shown in Figure 5.

This effect could be seen more clearly following a Newman-Keuls test on the significant group mean. It showed that each town was significantly ( $p < .05$ ) greater than Charleville on the number of contacts per patient. That is, clients treated in Charleville were seen less than at any other centre.

#### Discharge Variables x Diagnosis.

The second discriminant analysis sought to uncover relationships between the four variables and the diagnosis of the clients. Overall group discrimination was significant; Wilks Lambda = .565  $F(12, 408) = 28.29$   $p < .001$ . Two significant discriminant functions were obtained. Details of the analysis can be found in Table 14.

Table 13

Discriminant Analysis of Discharge Variables and Town

<u>Percent of variance</u>	<u>1</u>					
	61.27					
$\chi^2$	21.32					
	p<.01					
<u>Group Centroids</u>						
1. Dalby	.90					
2. Warwick	.97					
3. Stanthorpe	.83					
4. Roma	.48					
5. Goondiwindi	.83					
6. Charleville	.09					
<u>Correlations</u>						
Variable 1	No. weeks	.65	F	p <		
2	No. contacts	.69	1.50	.10		
3	No. non-patient contacts	.60	2.44	.03		
4	No. referred elsewhere	.39	2.01	.07		
			1.70	.14		
<u>Group means</u>						
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>
Variable 1	13.56	10.40	12.12	12.13	12.32	3.09
2	3.68	3.33	3.20	2.62	3.27	1.05
3	2.69	2.50	2.40	2.20	2.64	1.38
4	0.30	0.23	0.19	0.28	0.27	0.48



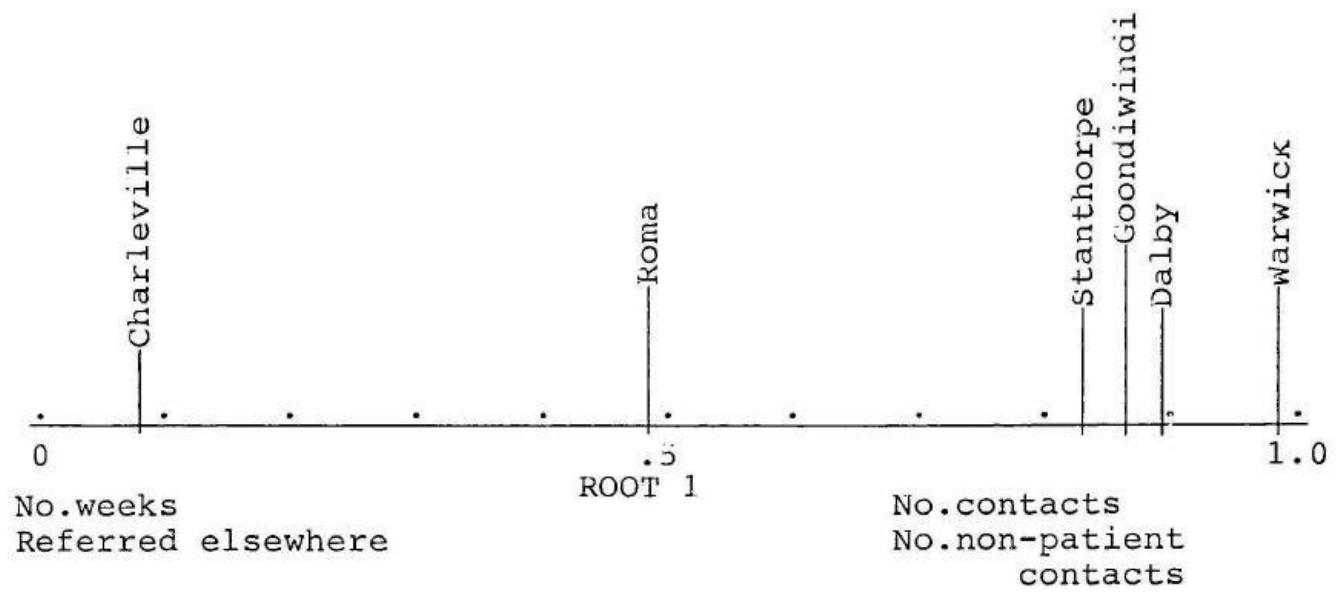


Figure 5. Plot of group centroids of discharge variables and towns.

Table 14

## Discriminant Analysis of Discharge Variables and Diagnosis

	<u>1</u>	<u>2</u>				
<u>Percent of variance</u>	71.85	19.39				
$\chi^2$	46.88	13.06				
	p<.0000	p<.04				
<u>Group centroids</u>						
1. Organic	.46	.11				
2. Psychosis	.61	.50				
3. Anxiety	.23	1.17				
4. Personality	.35	.85				
5. Marital	.11	.90				
6. Other	.50	.90				
<u>Correlations</u>			F	p<		
Variable 1	No. of weeks	-.02	.80	4.22	.001	
	2 No. of contacts	.22	.89	2.60	.02	
	3 No. of non-patient contacts	.19	.74	2.06	.07	
	4 No. referred elsewhere	.78	.36	6.30	.0001	
<u>Group means</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>
Variable 1	9.75	19.51	11.74	10.65	6.59	11.88
	2	2.38	4.37	3.43	2.69	3.10
	3	1.98	2.84	2.59	2.15	2.68
	4	.38	.39	.18	.16	.43

Examination of the first function suggests this dimension is best represented by the likelihood of the patient being referred to another agency, after treatment. The second function is more difficult to interpret because, although discriminating between groups it incorporates high correlations with all variables. Increased number of weeks, contacts and non-patient contacts are associated with a decreased chance of referral onward on this dimension. The position of the group centroids on these dimensions can be seen in Figure 6.

Univariate F tests on group means yielded three significant group differences. Analysis of these differences using Newman-Keuls tests clarified the parameters of the significant discriminant functions. Specifically it showed :

1. Patients with a diagnosis of psychosis were seen for a greater number of weeks than all other patients ( $p < .05$ ).
2. Patients diagnosed as psychotic were seen more often than patients with a diagnosis of organic disorder ( $p < .05$ ).
3. Psychotic patients were more likely to be referred on to another agency than those with marital or anxiety problems ( $p < .05$ ).

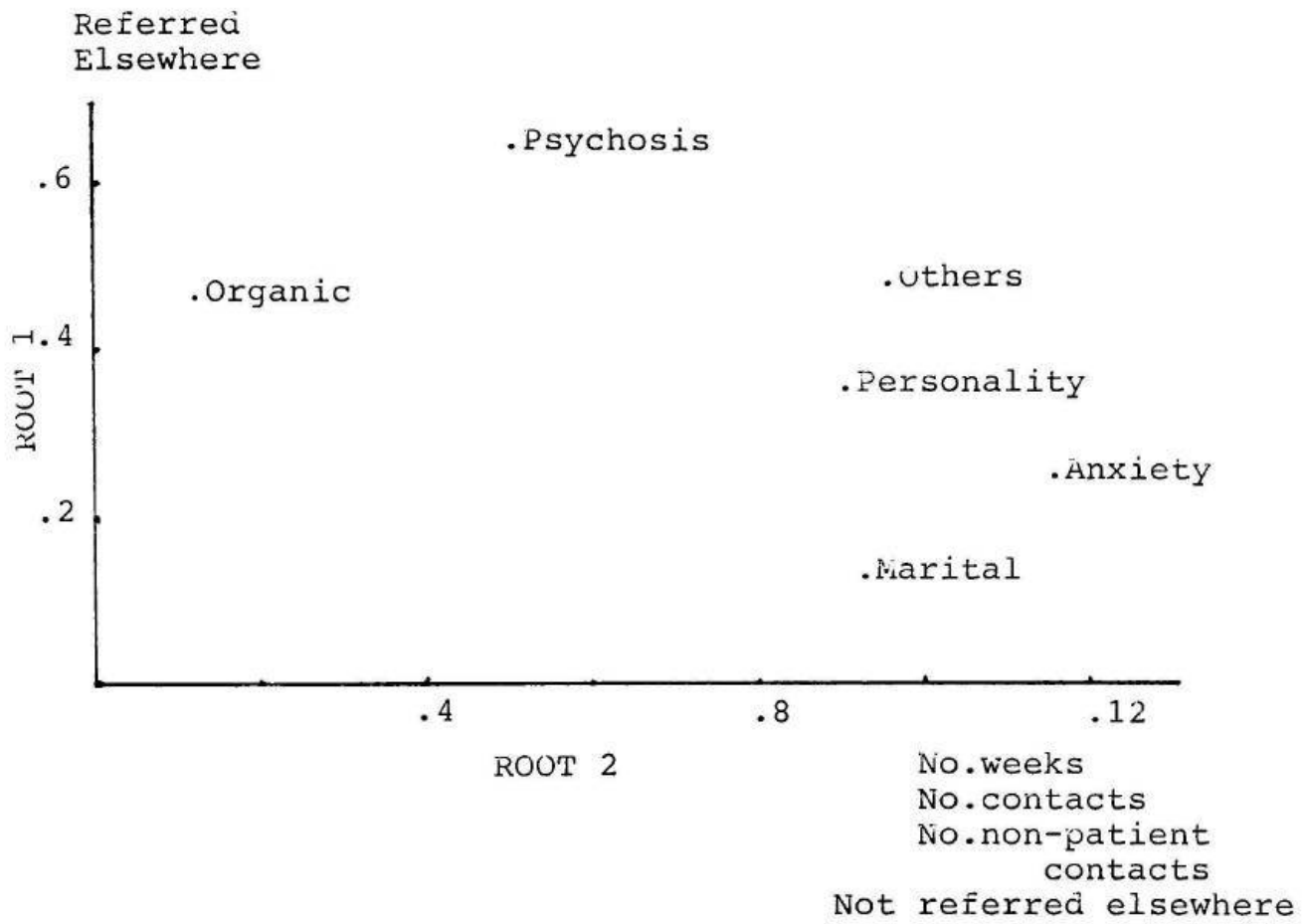


Figure 6. Plot of group centroids of discharge variables and diagnostic groups.



Discharge Variables x Treatment Outcome.

The third discriminant analysis looked at the relationships between the four variables and the outcome of treatment. Treatment outcome was divided into four categories namely :

1. Left treatment - clinic notified.
2. Left treatment - clinic not notified.
3. Problem resolved to satisfaction of both client and therapist.
4. Problem not resolved.

Outcome criteria were determined by the patients' therapist and one other team member at the time of discharge.

Overall group differentiation was significant. Wilks Lambda was .565, ( $F(12,1408) = 28.29$   $p < .001$ ). All three discriminant functions were significant. Details of the analysis can be seen in Table 15.

Correlations of the variables for the first discriminant function suggest the dimension represented is one of less likely to be referred to another agency. Dimension two is represented by the number of weeks of treatment and dimension three seems to be a combination of the number of weeks, contacts and non-patient contacts. Diagrammatic representation of the relationship between these dimensions and the group centroids can be found in Figure 7.

TABLE 15

Discriminant Analysis of Discharge Variables and  
Treatment Outcome

---

	<u>1</u>	<u>2</u>	<u>3</u>		
Percent of variance	93.89	4.15	1.95		
$\chi^2$	281.99	16.18	7.67		
	p < .0000	p < .003	p < .02		
<u>Group centroids</u>					
1. Left contact	-.14	-.40	4.00		
2. Left no contact	-.06	-.45	2.68		
3. Problem resolved	-.05	-1.33	3.04		
4. Problem not resolved	-.70	-.95	2.97		
<u>Correlations</u>					
				F	p <
Variable 1 No. of weeks	.15	.35	.90	4.53	.004
2 No. of contacts	.17	-.20	.92	4.70	.003
3 No. of non-patient contacts	-.01	-.13	.76	1.56	.20
4 No. referred elsewhere	-.99	.01	.10	120.48	.000
<u>Group means</u>					
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	
Variable 1	19.98	12.44	12.01	8.77	
2	4.45	2.92	3.69	2.54	
3	2.95	2.22	2.53	2.45	
4	.18	.08	.07	.70	

---

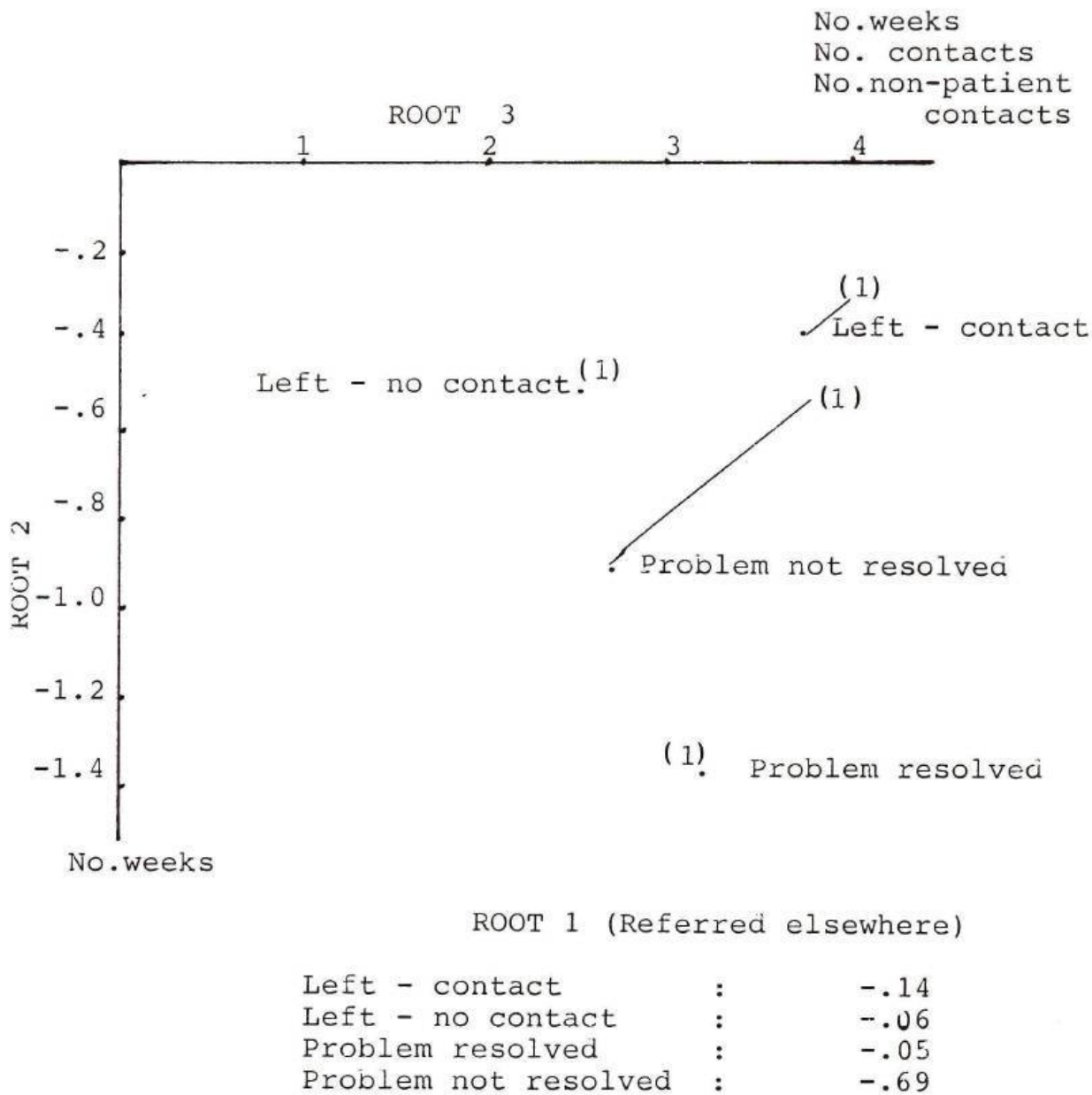


Figure 7. Plot of group centroids of discharge variables and treatment outcome.

Univariate F tests on the group means showed three significant group differences. Further analysis using Newman-Keuls tests highlighted the effects by showing that :

1. Patients leaving the service after informing the clinic are seen for fewer weeks than any other group of clients ( $p < .05$ ).
2. Patients leaving after notifying the clinic are seen less often than those who leave without contact or whose problems are not resolved when discharged ( $p < .05$ ).
3. Patients who left after contacting the clinic were referred on to other agencies less than other groups of patients ( $p < .05$ ).

A discriminant analysis examining the relationship between the discharge variables and the type of treatment received yielded no significant results.

Discharge Variables x Distance and Number of Services.

Two further analyses were performed to examine the relationship between (a) the discharge variables and the effect of distance from Toowoomba, and (b) the number of services available in the community. A stepwise Multiple Regression analysis was performed on each of the two criterion variables. As recommended



by several authors, the number of services per community was adjusted to take into consideration the population in the area (Hagedorn et al, 1979; Hargreaves & DeLay, 1979). That is, an index was created of the number of people per service in each centre. These figures were used in the Multiple Regression analyses.

There was no significant relationship between the variables and the number of people per service. However a significant relationship was found between distance and the discharge variables. Table 16 shows the correlations and squared multiple correlations of the variables with each of the distances, together with the F test and  $\beta$  weights above .1.

With 5 iterations, 19.17% of the variance was accounted for. On the basis of the high  $\beta$  weight for the number of contacts, the regression was repeated holding all other variables constant. A significant F test;  $F(1,534) = 8.95$   $p < .01$  showed that, in accounting for 14.36% of the variance, the number of contacts was a significant predictor of distance. That is, as distance of the clinics from Toowoomba increased, the number of contacts with each patient decreased.

Table 16

Multiple Regression of Four Discharge Variables  
on Distance from Toowoomba

---

Correlation	0.1917
Squared Multiple Correlation	0.0368
F (4, 534)	5.093

p < .001

Items with  $\beta < .1$

1. No. of weeks in contact	=	.1812
2. No. of patient contacts	=	-.2446
3. No. of non-patient contacts	=	-
4. Referred Elsewhere	=	-

---

### Discussion

In broad terms the evaluation results indicate that the South-West Queensland and Darling Downs Regional Psychiatric Service is providing a type of care which is being utilized by the rural communities. Assessing the effectiveness of this utilization is more difficult because few studies provide even a remotely similar basis for comparison. The following section will discuss the utilization patterns, comparing them to the available research, and examining the implications for the provision of future services. The discussion will be presented in the same order as the results section.

#### New Patients Assessed.

The first area of comparison when assessing utilization must be the examination of the number of new patients seen in the clinics. There were an average of 56.4 new cases seen at each clinic per year. In comparison, Kreyes (1968) reported 165 new patients being seen per year, and Miles (1980) showed data indicating two psychiatrists visiting Dawson Creek interviewed an average of 122 new patients per year.

At first glance, these figures seem to suggest a significant underutilization of the present service but the difference may be explainable in terms of demographic

and geographic features of the areas. Both previous authors reported on clinics servicing a larger population living in a much smaller catchment area. Kreyes' (1968) target population was over forty thousand people living within a 4,000 sq km area. Likewise, Miles (1980) was providing a service to over 31,000 people in the one town and immediate surrounds.

Thus, the comparatively lower number of new referrals assessed here may be due, at least in part, to the smaller and sparser target population. There may not be as many people to be treated at the clinics.

As was seen in Table 4, the number of new patients and total number of contacts steadily increased for the duration of the study. This is partially attributable to the staggered openings of each new clinic but also seems to reflect the steady increase in referrals which occurred at the more established clinics. Not only did the service requirements remain consistent, but in most cases the trend was to increase the number of referrals over time. This phenomenon was confirmed in Table 4 where it can be seen that in all clinics except Roma and Goondiwindi, referral numbers increased steadily across the period of the study.



The reason for the inconsistent trend in Roma and Goondiwindi makes for interesting speculation.

Goondiwindi's utilization pattern is quite clearly the poorest of all the clinics. Fewer new patients were referred generating the lowest number of contacts of all the clinics. The low referral rate can be explained to some extent by the unfavourable attitudes of local caregivers to the introduction of the service. As mentioned previously, similar services aimed at treating disturbed and handicapped children had been commenced in the past, but due to funding limitations, had been subsequently discontinued. A number of "failed" services in the town had led to great dissatisfaction and distrust on the part of local health care personnel. Understandably the caregivers were reluctant to become involved with the new service and were hesitant about referring cases to the team. Those cases that were referred tended to be long standing chronic social problems with whom no one else wanted to work. Indeed the low rate of referrals led to an administrative decision to cease the service to the town. The clinic was stopped 12 months after being opened.

The data from Roma seem to be illustrating a process of initial enthusiasm and unrealistic

expectations gradually being replaced by acceptance of the limitations of the service. As shown in Table 4, when the clinic was first commenced, the number of referrals for assessment was unusually high. There was an initial flood of varied, sometimes inappropriate referrals. Particularly noticeable was the large number of chronic social problems unsuccessfully being coped with by local resources.

Wherever possible these cases were assessed and referred back to the local caregivers. It was emphasized that the new service would not take over management of cases unless absolutely necessary. After about six months the rush of referrals tapered off and settled into what was a more appropriate flow of cases. It appeared that as the caregivers became more aware of the limitations and capabilities of the service, their referrals became more appropriate.

Roma was the only town in which this practice occurred to any noticeable extent. In each of the other towns, it seems there was an initial testing period, characterized by low referral rates, as local staff assessed the competence and capability of the new service. This "proving period" was then followed by a steady increase in referrals as confidence and knowledge of the new team grew.

### Number of Contacts

Examination of the number of contacts (Table 4) confirms this trend. In all towns except Roma and Goondiwindi, the number of client contacts rose steadily over time. Roma decreased marginally and Goondiwindi decreased quite dramatically.

### Non-Attendance

Data detailing the number of non-attendances at the clinics also provides an interesting comparison of utilization patterns. In the present study about 19% of the total number of bookings failed to attend for their appointments. Phillip (1983) reported that 16% of patients failed to attend an outpatient psychiatric facility in a metropolitan area. Weighill, Hodge and Peck (1983) reported 35% non-attendance, and in a recent study, Trepka (1986) presented data showing over 40% of clients had failed to attend outpatient appointments.

When comparing the present study to the available literature it appears that the non-attendance rate was acceptably low, implying a relatively efficient utilization rate. However in practical terms a non-attendance rate of nearly one in five patients makes clinic time allocation a difficult task. Most clinics were heavily booked throughout the study, making unproductive clinic



time frustrating to caregivers and team members alike.

Anecdotal reports suggested that in many cases, the patients' non-attendance was a reflection of the ambivalent attitude of the referring caregiver. It appeared that if the referrer was not convinced of the efficacy of the travelling service, the patient would be less likely to follow through with the referral. As well, the team was often portrayed as the "last hope" to solve a difficult problem and it is postulated that many clients failed to attend for fear of having their last chance dashed.

Whilst these problems with referral sources are not unique to the present study, it would seem appropriate to attempt to improve utilization by increasing public and caregiver knowledge of the available services and to provide as much feedback and support to the referral sources as possible.

### Diagnosis

Comparison of diagnostic categories between the present research and previous studies is clumsy because of the inconsistent usage of diagnostic categories and the often unclear criteria for inclusion in diagnostic groupings.



When comparing the data with that of Kreyes (1968) it is unclear if the proportions of clients with each diagnosis were substantially different. Kreyes reported 34% of his clients were psychotic compared with 23% in the present sample, neuroses, 28% as opposed to 43%, and personality disorder, was 6% as compared to 14% in the current study.

Diagnostic classifications reported by Ben-Tovim (1983) serve to confuse the picture even more. His figures of epilepsy (33%), neuroses (27%) and schizophrenia (21%) may be different from the current data. However his research may be qualified by the statement that the major thrust of the service was to be the treatment of epileptic and schizophrenic disorders. This may have led to an increased rate of presentation by these groups of patients.

It is tempting to speculate on possible reasons for the differences in the diagnostic classifications between the present study and similar research. However, the myriad of contributing variables combine in complex ways, making the differences attributable to factors such as the method of service provision, population characteristics, diagnostic practices of the treatment team or some unique feature of Australian rural areas.

An interesting characteristic of the population utilizing the clinic facilities was the high proportion of women (61.1%). This was also illustrated by the notably high percentage of clients whose primary occupation was home duties (almost 29%). Whilst it remains difficult to postulate on the reasons for this trend it bears some significance for the planning of future services. When decisions are made as to the composition of the clinic team, it may be important to bear in mind that nearly a third of clients are housewives and almost two-thirds are women.

Likewise it may be relevant to future planners to recognise the high proportion of married/defacto clients (50.3%) and the large numbers of geriatric referrals (14.2%). These areas of observed need may benefit from specialist staff skills where available.

### Referral Sources

Referral sources, as described in Table 10, show quite clearly that the staff of the local hospital provide the richest source of patients. Accounting for over 37% of the total referrals, this group of caregivers was apparently the major focus of psychiatric treatment in the community. When combined with the referral rates for local general medical practitioners, those two groups accounted for over 62% of the referrals. It can

be inferred from these data that the major target groups for consultation and support should be the communities' medical personnel.

These data could also be interpreted as showing that other referral sources may be not utilizing the psychiatric service as efficiently as possible, and therefore these agencies should be given more information and contact with the team. For example, ministers of religion accounted for only 0.7% of all referrals yet represented the greatest single group of caregivers in every town. On the other hand it could be argued that the large amount of time required to survey and consult with these people would be better spent in consultation and education with the caregivers of identified psychiatric patients. It is not an easy dilemma to resolve and the author's opinion on these issues will be discussed in the Recommendations section of the final chapter.

Another aspect of the data on referral sources bearing comment is the relatively low proportions of referrals from Baillie Henderson hospital (15%). Given that one of the initial goals of the service was to provide a more comprehensive follow-up network for discharged patients, it appears as though the travelling clinics may be underutilized. This issue will be discussed in relation to the number of



admissions in the section on the impact on Baillie Henderson Hospital.

When the referral rates to the service are examined in the light of the proportion of problems identified during the needs surveys, interesting data emerges. As shown in Table 11, general practitioners and miscellaneous caregivers were consistent between proportion of cases recorded in the surveys and proportion actually referred to the clinics. Community Health staff and members of the clergy identified many more problems than they actually referred, and local hospital personnel referred many more cases than was expected from the survey results.

The reasons for these changes from expected to actual referral rates is not clear, but may be indicating the pathways to care in the rural areas. That is, although Community Health staff and ministers of religion encountered a significant proportion of people with mental health problems, referrals to the clinics were primarily made via general practitioners and local hospital staff. The low proportion of identified problems by local hospitals may have been an artifact of low survey completion rates by this group. Comparing the actual versus expected referral rates strongly indicates the need for caution when interpreting needs survey results.



### Seminars

The data presented on the number of seminars given seems to support the notion that, whilst they do occur, they are given low priority by the team administration. Only an average of nine seminars per year were presented, about two seminars per clinic per year. Kreyes (1968) and Miles (1980) have both emphasized the importance of the educative role for travelling services in rural areas, and the present data suggest this function is not being fulfilled currently. Team administrators need to carefully examine the priority placed on primary prevention and assess whether this aspect of service utilization needs to be increased.

### Discharged Patients

Data from Table 12 describing the characteristics of all patients discharged from the service, yields strong evidence that the travelling clinic clientele are generally not long-term chronic cases. The number of patients discharged represent over 70% of those admitted during the same time and an average duration of contact of only 8.8 weeks suggests that the majority of people admitted are discharged within 2 months.

Unfortunately the data do not permit an analysis of the duration of contact of those people currently receiving service. It may be that there did exist a

core group of chronic patients who have been treated for a number of years and will probably continue under treatment for some years to come. Experience in the team would suggest that such a group does exist but probably only represents about three or four clients per clinic.

The average number of contacts per client when compared with the average number of non-patient contacts per client indicates that the team's objective of maintaining a regular feedback service to the caregivers has been achieved. In two out of every three contacts with the patient, another contact - either letter, phone call or personal visit - was made with the referral source or other agency concerned with the care of the patient. This high rate of consultation and indirect education was deemed essential for the successful management of the patients between team visits. Local caregivers were given as much information as possible to enable them to continue caring for the disturbed patient in the absence of the team. When the current data are compared with Kreyes' (1968) figures it seems that both services were providing roughly equivalent treatment. Kreyes reported an average of 3.9 contacts per person during treatment, compared with 2.8 contacts per patient in the present study.

Examination of the data on the types of treatment received (Table 12) yields information on utilization which is difficult to interpret. The major finding was that the predominant form of treatment was individual therapy (36.1%). This category describes all forms of contact which are unrelated to medication prescription, and which occur with individuals on a one-to-one basis. Thus a broad range of therapies such as behaviour therapy, insight therapy, and supportive counselling would all be included under this heading.

Therefore about one third of all referrals to the clinic received individual treatment, subsequent to their initial assessment. This high percentage may be explained by the nature of the team's structure. All team members were trained in psychological treatment techniques whereas only the medical officer and psychiatrist could prescribe medication.

As well, both marital and family therapy were generally deemed to require two team members as co-therapists. Such an approach, whilst clinically sound, is less cost-effective in staff time. Team members may have preferred to provide efficient individual therapy rather than more time-consuming joint therapy.



About one quarter of all referrals are seen for an assessment and are then referred back to the referrer for any necessary intervention. The team institutes no intervention with these people. This figure of 25% shows the clearing house phenomena described in the literature (Jeffrey & Reeve, 1978). That is, when a professional service is the only service visiting the town, a multitude of varied problems may be referred for an opinion. Often these referrals are inappropriate, but since specialist treatment personnel are available, the referrers assume the clinic will be able to deal with any sort of problem.

In many of the centres visited, the travelling psychiatric service was the only specialist medical service available, and hence many problems (often only indirectly psychiatric in nature) were referred. In most cases this practice was encouraged by team members, by recommending to caregivers that any possible cases be referred, and that appropriateness be assessed by team members.

This seems to be an important function which is being fulfilled by the service. Although accounting for nearly one quarter of the referrals, it was seen as a way of demonstrating support for the beleaguered caregivers, despite the hopelessness of many of the



referred cases. The policy of open referrals led to many cases of disorders such as alcohol abuse, Alzheimer's disease, and drug dependence being referred. These disorders were found not to be effectively treated on an outpatient basis.

As well, a large number of intellectually handicapped persons were referred due to the inaccessability of specialist services for those problems. These referrals could not be regarded as totally inappropriate because the team had developed a close liaison with the Toowoomba-based services for intellectually handicapped people and ongoing referrals were easily made. As well, contact with the clinic often provided the opportunity for much needed support for parents and relatives of these people.

In principle the proportion of the inappropriate referrals should diminish as referrers become more educated and the numbers of special groups (like intellectual handicap), not in contact with appropriate services, would diminish. However at the time of the evaluation, this appeared to be an important function of the service.

Another category of service utilization of interest is the 23% of clients whose treatment was concerned primarily with the prescription of medication.

Whilst not a great proportion of all clients, perhaps this is a group which could be reduced by encouraging local medical staff to be primary therapists. That is, patients requiring treatment with medication could be assessed by the team and referred back to their local medical staff with instructions and suggestions on appropriate treatment. Regular contact with the prescriber would need to be maintained and occasional reassessments encouraged.

The reason for discharge data indicate about one quarter left the clinic without notifying the staff. The reasons for such a high drop-out rate are unclear and no other data on drop-out rates in rural clinics are available for comparison. When this figure is combined with the non-attendance rate of 19% it seems to suggest that greater importance needs to be placed on community education and salesmanship of the travelling clinic and its services.

#### Discharge Variables x Clinic

Statistical analyses of the data largely confirmed aspects of the team's functioning which had been assumed but never assessed. The results of the discriminant analysis of the discharge data by town showed, as expected, that the Charleville service had the least number of contacts per patient. This result was seen to occur because the Charleville

clinic had only been operating for six months at the time of the evaluation. During that six months most of the referrals had been difficult or inappropriate cases to test the skills of the "new" service (Jeffrey & Reeve, 1983). The high number of inappropriate referrals led to a low number of contacts because of the likelihood of rapid referral to more appropriate agencies. Thus an averaged number of contacts would be lowered.

#### Discharge Variables x Diagnosis

Results from the analysis of the relationship between diagnosis and discharge characteristics, yielded expected trends. The analysis indicated that patients with a diagnosis of psychosis were seen for a longer period of time than all other patients, and were seen more often than selected other groups.

These data make sense when the nature of the disorder is taken into account. People with psychotic disorders usually require fairly close follow-up for long periods of time and therefore would have a greater number of contacts and longer periods of time in treatment.

The result showing marital problems being less likely to be referred on than most other diagnostic categories is an interesting one. The reason for this is unclear but may relate to the fact that if



the marital therapy was successful, then there would be no need for other agency follow-up, and if not, then the couple are likely to drop-out of treatment altogether.

#### Discharge Variables x Treatment Outcome

The analysis of the relationship between treatment outcome and the discharge variables yielded both expected and unexpected results. It was to be expected that clients who informed the clinic prior to leaving would be referred to other agencies less often than any other group. It was somewhat surprising to find that this same group of patients were seen for fewer weeks and fewer appointments than all other groups. Interpretation is difficult but it may be that less severely disturbed patients drop out of treatment more quickly (if they are going to drop out) and it is this less disturbed group who are more likely to notify the clinic.

#### Discharge Variables x Number of Services

The Multiple Regression analysis of the number of people per service and the predictive value of the discharge variables surprisingly yielded a non-significant result. Although no literature exists to support this notion, it was thought that a greater number of available services, per head of population, would be likely to decrease the time and contact of



patients with the service. There was no significant relationship between the measured variables to support such a notion.

#### Discharge Variables x Distance

Analysis of the relationship between distance from Baillie Henderson Hospital and the discharge variables showed that the best predictor of distance was the number of contacts. This indicated that as distance increased, the number of contacts between clients and the clinic decreased.

There was no significant relationship between distance and duration of service received. Such a result may be an artifact due to Charleville's low number of contacts and the fact that Charleville is by far the most distant centre visited. However it may also indicate that, due to some other factors such as transport difficulties or longer delays for service, people in the more distant communities maintained fewer contacts.

The relationship between the number of visits and the duration of the treatment is unclear. It is impossible to determine whether the number of treatments received, or the period of time under treatment, is the critical factor in service provision to distant centres. For example, whether a

patient needs six treatments, or needs treatment for six months to benefit from the service, is a question to be answered from future assessments.

## CHAPTER 9

## CLIENT SATISFACTION

Most authors agree that client outcome evaluation techniques are primary tools for assessing the effectiveness of treatment services, and their basic purpose is to measure the impact of treatment on the lives of clients (Flax et al.,1979). A variety of client outcome evaluation techniques have been developed and they differ from each other in two basic ways, (a) criteria, and (b) perspective. The first involved the criteria for measuring outcome, e.g.,pre-post measures of symptoms, or post-treatment measures of change or satisfaction. The second area of difference refers to the perspective from which the assessment is made, e.g. the client, the therapist or independent judges. That is, from whose viewpoint is the change measured (Hagedorn et al. 1979). The choice of assessment technique varies with the goals of the evaluation.

Three needs have been identified which are seen to motivate client outcome studies, namely :

1. The ongoing monitoring of program quality.
2. The demonstration of program effectiveness to outsiders.
3. Making program modifications aimed at program improvement (Hargreaves, Attkisson & Ochberg,1975).

Although these appear to be admirable goals, few studies have been published which address the issue of treatment outcome and client satisfaction in a rural setting (Flax et al., 1979). The little research available has primarily focussed on client outcome following treatment at rural community mental health centres, and has usually dealt with anecdotal data (Cathell & Stratas, 1967; Ordway, 1976). A few studies are available which provide systematic evaluation of client change, and these have sought different goals and used different methodologies.

Gilligan and Wilderman (1977) surveyed 104 discharged rural patients using an Adjective Generation technique to describe changes in the patients' self concept. A six item questionnaire was mailed to the subject. Achieving a return rate of 50% the authors found that 75% of the mental health centre clients had rated themselves as being helped with their problems.

Hargreaves and DeLay (1979) mailed copies of the Client Satisfaction Questionnaire to a random sample of 100 current outpatients. They obtained a response rate of 52% and an average satisfaction rating of "slight improvement".

No research is available on client outcome data



from mobile psychiatric clinics. Two studies dealing with travelling clinics mention the subject briefly but present only anecdotal information.

Hagedorn and his colleagues (1979) in their treatise on community mental health centre evaluation, discussed several techniques to assess client outcome. They adopted the position that each technique has its merits, and the evaluators' choice is determined by goals, cost, and time limitations. The authors recommended mail surveys as the most cost-efficient technique. Flaskerud and Kviz (1982) agreed but warned that mail surveys discriminate against low income earners unless a return postage paid envelope is provided.

The present study will evaluate client outcome and satisfaction with the travelling psychiatric service as measured by a mail survey.

### Method

#### Materials.

A client satisfaction survey was developed using the guidelines proposed by Gilligan and Wildermann (1977) and Hagedorn et al. (1979). Questions chosen for inclusion on the mail survey were derived from questionnaires described by the above authors and requests for information from

Baillie Henderson Hospital executive members.

A ten-item questionnaire was developed and administered to 10 outpatients, who were attending a day hospital in Toowoomba. Difficulties with rating scales led to three questions being removed.

A copy of the final questionnaire can be found in Appendix D.

#### Procedure

Of the 297 people discharged from the service in 1984, 242 were selected for the survey. Surveys were not posted to the remaining 55 people because of an insufficient address or because the patient was deemed incapable of completing the survey due to degree of intellectual impairment.

Thus, 242 patients received the questionnaire and a stamped, return addressed envelope. Clients were followed up between one and three months after discharge from the service.

#### Results

Eighty-three completed surveys were returned, giving a return rate of 34.3%. There were no differences in the response rate from each town. Table 17 summarises the responses given to the questionnaire.

Table 17

## Mean Responses to Client Satisfaction Questionnaire

N = 83

Question	Response
2. Effect at the Time of Consultation?	Av. Rating = 3.8
3. Effect since you stopped seeing us?	Av. Rating = 3.7
4. Were you satisfied with the treatment?	90.4% said yes
5. Could we have improved the service?	19% said yes
6. Have you sought help for the same problems since?	39.3% said yes

Percent of Variance	<u>1</u>
	81.88
$\chi^2$	83.626
	p < .001

Group Centroids

1. Organic	2.04
2. Psychosis	5.27
3. Anxiety	4.77
4. Personality	2.65
5. Marital	.41
6. Other	3.61

Correlations

Variable	1	2	3	4	5	6	F	p <
1 Sex							1.37	N.S.
2 Rated effect at the time	.11						27.27	.001
3 Rated effect after	.99						1.39	N.S.
4 Were you satisfied?	.05						.11	N.S.
5 Suggested changes?	.04						1.51	N.S.
6 Sought help elsewhere ?	-.03						2.35	N.S.

Group Means

Variable	1	2	3	4	5	6
1						
2	.25					
3	2.00	.58				
4	4.00	5.75	.69			
5	3.25	4.00	5.12	.47		
6	.00	3.58	3.63	2.47	.60	
	1.00	.00	3.53	3.29	3.70	.88
		.91	.09	3.65	3.45	3.75
			.59	.24	.05	3.38
				.59	.75	3.38
						.00
						1.00



The data were analysed using two Discriminant Analyses. Diagnostic groupings were made as discussed in the previous study's results section.

The first discriminant analysis sought to find the relationship between patient responses and the towns in which they were treated. Overall significance was not reached.

The second discriminant analysis looked at the relationship between client responses and their diagnostic grouping. Overall group differentiation was significant; Wilkes Lambda was .274,  $F(30,330) = 4.211$ ,  $p < .001$ . One discriminant function was significant. The percentage of total variance, and  $\chi^2$  tests are set out in Table 18.

Examination of the correlations of the variables with the discriminant function suggests the dimension is represented by the rating of the effect of treatment at the time of service. A plot of the group centroids on this dimension can be seen in Figure 3.

A Neuman-Keuls test on the significant group mean clarified the effect further. It showed that treatment was rated as less effective at the time by clients with marital problems more than any other disorder ( $p < .01$ ). As well, clients with psychotic

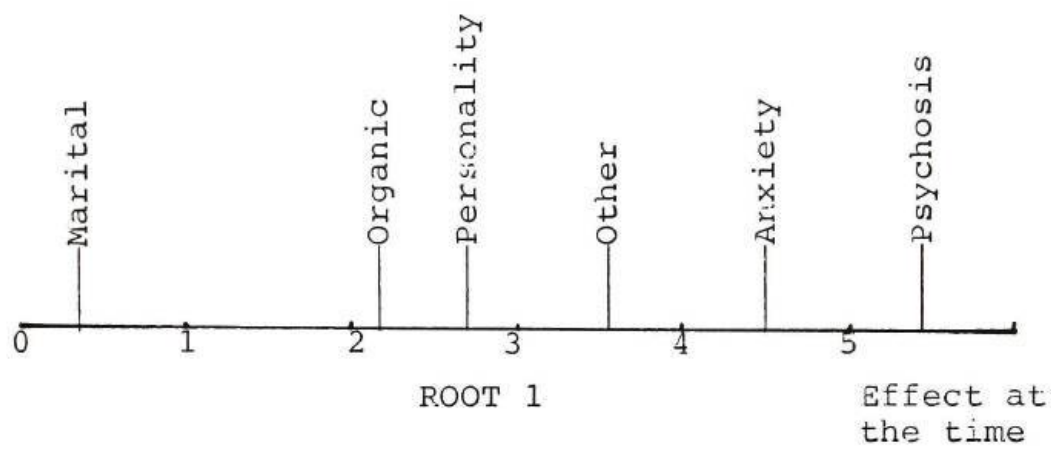


Figure 8. Pict of group centroids of diagnostic groupings on patient satisfaction ratings.

disorders rated treatment as more effective than all other groups except anxiety disorders ( $p < .05$ ).

Stepwise Multiple Regression analyses were performed to examine the relationships between the questionnaire responses and the effect of distance from Toowoomba and the number of available services in the community. Results from both were below the required level of significance.

### Discussion

Overall, the results suggest that discharged patients rated themselves as improving both during and after treatment and are satisfied with the service they received. Such results are encouraging for the service and seem to indicate that the travelling clinic is achieving its aims of meeting the clients' needs.

The return rate of the mailed questionnaires was below previously reported percentages (Gilligan & Wildermann, 1977; Heiman, 1983). There is no clear reason for such a low return rate except it is the first study reporting data from areas of rural Australia. Rural Australians may be less inclined to return surveys or it may be an indication of the distrust of psychiatric services in those areas. Alternatively it may relate to the newness of the

of the service, and scepticism of the likely continuation of the clinics. Client response to the satisfaction questionnaire may have been improved by individually phoning or contacting in person, each client. Funding and staffing arrangements did not permit such a course of action.

Alternatively, the lack of confidentiality of the survey forms may have resulted in a reluctance to participate in the survey.

The research finding that clients with marital problems rated the service as less effective than all other groups creates interesting speculation. It may simply be a bias of the returned surveys that only unhappy married couples replied. It may also indicate that the current structure of the team is not effective in treating marital disorders. People with marital problems may resent being sent to a psychiatric clinic for help and therefore not work efficiently towards a resolution of their problems. Marital problems may be exacerbated in rural areas; several authors have commented on the increased pressure placed on spouses in rural areas and it may be that rural marital problems are more severe (Martinez-Brawley, 1980; Meck & Leunes, 1977). Alternatively, it may be that easily resolved marital problems are treated effectively by the existing services in each town, and therefore it is only the more severe difficult cases which are treated by the travelling clinic.

The fact that people diagnosed as psychotic are more effectively treated than other groups may be an indication of the efficiency of modern psychiatry. The team functioned by treating most people in their home



community and not referring them for hospital care in distant Toowoomba. Use of anti-psychotic medication and regular contact with local caregivers enable psychotic patients to be treated without the disruption of hospitalization. This finding may be indicating the usefulness of such treatment philosophies.

Non-significant findings of the effect of distance and the presence of other helping agencies suggests that the travelling clinic was equally effective regardless of how far people would previously have had to travel, and the number of other helping agencies available.

It would have been preferable to incorporate other measures of behavioural change in the assessment of the degree to which clients were helped. Unfortunately, time and funding limitations precluded this.

## CHAPTER 10

## IMPACT ON THE RURAL COMMUNITIES

There is a developing, but at present somewhat limited, body of knowledge relating to the impact of community psychiatric services on the community in which they are based (Flax et al., 1979). The recent trend towards deinstitutionalization of mentally ill patients has meant that more and more of these patients are being treated in their own community by local resources. Such a change has had an impact on the local communities in general, and on the resident caregivers in particular (Bachrach, 1977).

Several authors have examined the impact of community mental health services on population attitudes toward mental illness (Baron, 1981; Bowen et al., 1981; Smith, 1981), but few have studied the impact on local caregivers' attitudes and treatment methods.

When it has been assessed, the impact of mental health services on caregivers has been evaluated along two parameters, namely :

1. The effectiveness of the outreach service's consultation and education activities.

2. The degree of psychiatric sophistication, as measured by changes in prescription rates of psychotropic medication (Taylor & Vineberg, 1978).

Hargreaves and DeLay (1979) assessed the effectiveness of their rural outreach program's education component by measuring time spent in consultation and education with local personnel. They then followed up with a questionnaire to evaluate the caregivers' satisfaction with the program. Unfortunately they have not yet published any data on the outcome of their research.

Perlmutter (1979), whilst strongly advocating the need for assessment of the impact of outreach programs on rural communities, offered no data, nor any advice on how to achieve these goals.

The only author who has systematically evaluated the impact of a psychiatric service on a rural community has been Miles (1980). He assessed the effect of education, consultation and clinical outreach services on local physicians, nurses and allied health personnel.

Using mailed questionnaires he asked two open-ended questions :

1. How has the outreach program affected your professional practice?
2. How has the day care program affected your professional practice?

The caregiver responses, not quantified in any way but simply reported verbatim, were regarded as being overwhelmingly in favour of the programs and suggestive of a strong positive impact on professional practice.

Hagedorn and his colleagues (1979), in their review of evaluation tools, suggested questionnaires as the technique of choice to assess impact on caregivers. They recommended similar techniques to those used by Miles (1980).

Thus the present study was designed to assess the impact of the travelling psychiatric clinic on the caregivers and general population in the six rural communities. No published data on the impact of travelling services nor of any Australian community-based facilities are available for comparison.

### Method

#### Materials

A 23-item questionnaire was developed based on



Miles' (1980) study and Hagedorn et al.'s (1979) recommendations for questionnaire format. As well, staff from Baillie Henderson Hospital requested feedback from rural caregivers on their perceptions of inpatient treatment. Three questions were included in the questionnaire to obtain this information.

The questionnaire can be seen in Appendix E.

#### Procedure

The questionnaire was used as the format for a structured interview. Team members from the travelling service interviewed caregivers in each rural community. Caregivers were identified from the earlier needs surveys and each person interviewed was asked to view a list of available services and suggest any other agencies or caregivers not already listed.

Each survey recipient was phoned at his/her place of work and a mutually convenient time arranged. Two team members interviewed each caregiver. The survey took about 15 minutes to complete.

All communities surveyed had been receiving the travelling service for a minimum of 12 months.

## Results

Ninety-three caregivers in six communities were interviewed. These were largely the same people who had participated in the earlier needs surveys. The groups represented were local hospital staff (12), General Medical Practitioners (24), Community Health Staff (13), Clergy (27), and miscellaneous others (17). Ten of those surveyed were not aware of the existence of the service. These 10 were eight clergy and two police who had recently been transferred into the towns and had not received adequate handover of information from their predecessors. Therefore 83 usable surveys were obtained.

For ease of analysis, Question 1 "Are you aware of the existence of the service? Frequency? Clinic locations? Team members? Services offered?" was converted to a total awareness score. That is, the number of affirmative responses were added and a total score out of five was obtained. The mean score was 3.72.

Due to incomplete data, Question 9 "Are you satisfied with the six aspects of the clinic's services?" could not be analysed. Instead, Question 10 "How would

you rate the overall service?" was used as the best indicator of the level of satisfaction.

Responses to the questionnaire are shown in Table 19.

Respondents' answers to Question 2 "How did you learn of the existence of the service?" clearly showed that most people became aware through contact during the initial needs surveys.

Data from the questionnaires were analysed using a Discriminant Analysis program to determine the extent to which responses on the interview discriminated between towns. Overall group differentiation was significant; Wilks' Lambda was .456, ( $F(40,308) = 1.521$   $p < .05$ ). Two discriminant functions were significant. The percent of total variance,  $\chi^2$  tests, group centroids, correlations, univariate  $F$  tests and group means can be seen in Table 20.

Examination of the correlations on the first discriminant function suggests the dimension represented is one rated change in personal attitudes, community attitudes and the community in general. In broad terms it could be said to represent the caregivers perceptions of change in the community.

Table 19

## Caregiver Responses to Evaluation Survey

Question	Mean Rating (1-7) <sup>a</sup>	% of <u>Yes</u> responses
Have you used the clinic?		65
Have you used the telephone service?		51.8
Have you used the education service?		26.5
Overall rating	5.49	
Rated effect on treatment methods	2.28	
Change in personal attitudes to mental illness	2.37	
Change in community attitudes to mental illness	2.56	
Overall effect on the community	2.74	
Have you encountered difficulties?		14.5
Can you suggest any changes?		27.7
Is the service a worthwhile idea?		100
Have you admitted anyone to Baillie Henderson Hospital?		49.4

<sup>a</sup> 1 = lowest

7 = highest



Table 20

## Discriminant Analysis of Caregiver Variables and Town

		<u>1</u>	<u>2</u>				
<u>Percent of variance</u>		41.80	33.37				
$\chi^2$		23.98	19.72				
		p < .02	p < .03				
<u>Group centroids</u>							
1. Dalby		-.31	-1.48				
2. Warwick		-.49	-2.45				
3. Stanthorpe		-.29	-2.88				
4. Roma		-.67	-2.40				
5. Goondiwindi		-.11	-2.34				
6. Charleville		-.66	-3.09				
<u>Correlations</u>							
Variable 1				F	p <		
1 Group no.		.29	-.14	.52	.76		
2 Knowledge		-.11	.16	1.05	.39		
3 Used clinic?		.04	-.32	1.25	.29		
4 Rating		-.05	-.48	1.11	.36		
5 Effect on therapy		-.11	.49	1.29	.28		
6 Positive attitude		.58	.28	2.51	.04		
7 Population attitude		.46	.06	1.13	.35		
8 Effect on community		.73	-.27	3.30	.01		
<u>Group means</u>							
		<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>
Variable 1		2.71	3.05	3.27	3.39	2.89	2.82
2		3.86	3.95	2.91	4.00	3.67	3.91
3		.21	.20	.45	.28	.56	.45
4		5.00	5.40	5.45	5.44	5.11	5.91
5		3.14	2.35	1.45	2.44	2.11	2.18
6		2.79	1.50	2.91	2.94	2.44	1.64

The second discriminant function shows negative correlations with amount of clinic usage and overall rating, and positive correlations with ratings of the impact on treatment methods. Thus it seems the more an agency used the service the higher they rated it, but the less effect it had on their treatment methods. This axis could be labelled as an indicator of familiarity and perceived effectiveness.

The plot of group centroids (Figure 9) suggests that a low rate of utilization of the clinic is associated with a low rating of satisfaction, and the rated high effect on treatment methods is associated with a greater impact on caregivers and community attitudes.

The effect of this significant interaction could be seen more clearly after performing a Neuman-Keuls test on the significant means. This showed that the rated effect on the community was greater in Roma than in Dalby or Warwick ( $p < .05$ ). That is, caregivers in Roma rated the impact of the service significantly greater than their counterparts in Dalby and Warwick.

Next, two stepwise Multiple Regression analyses were performed to ascertain whether any linear combination of responses predicted either distance from

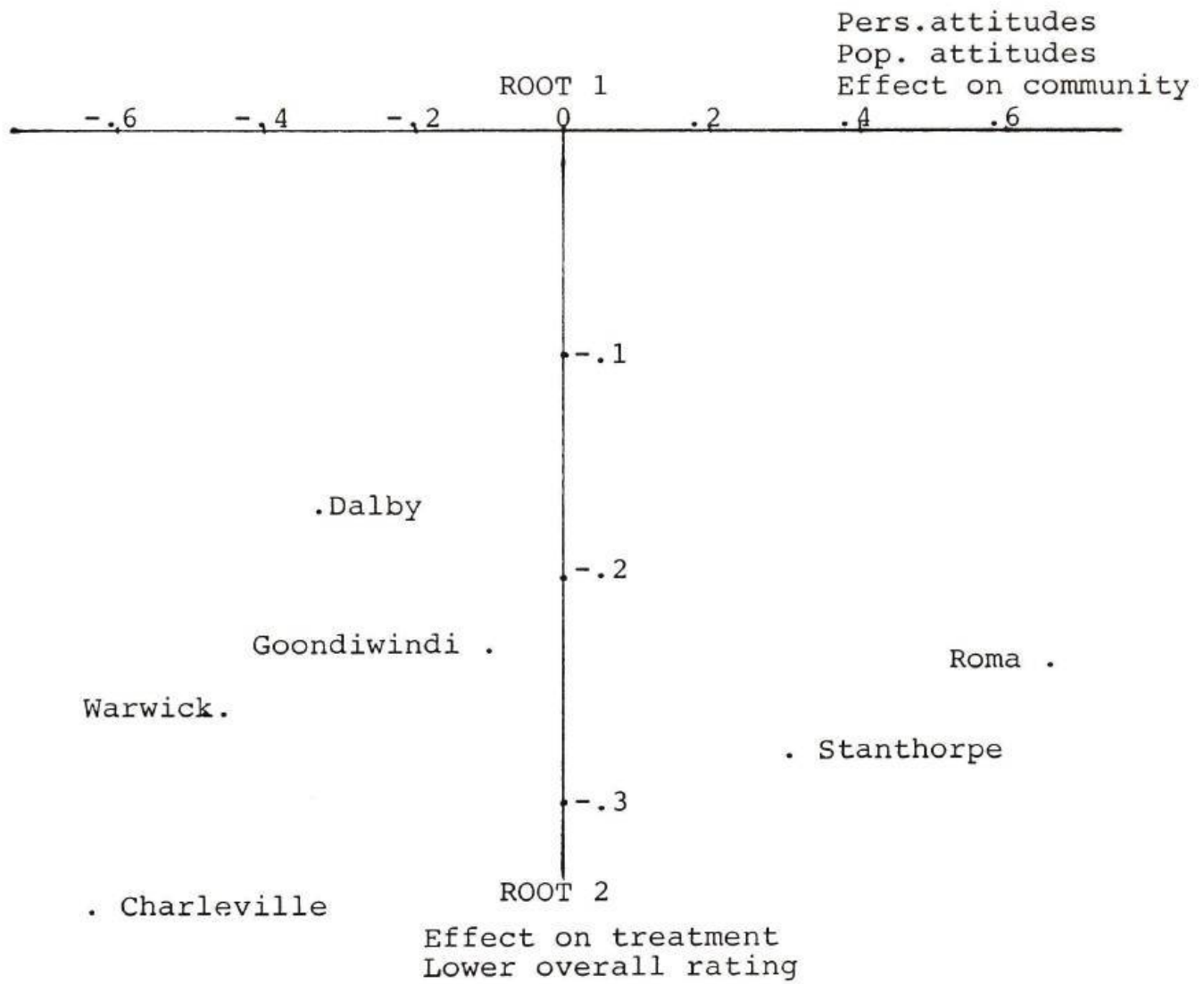


Figure 9. Plot of group centroids of caregiver ratings and towns.

Toowoomba or the number of available services in the community.

The effect of distance was non-significant. For the number of available services, 47.7% of the variance was accounted for with 16 iterations. Correlations and squared multiple correlations can be seen in Table 21. The highest  $\beta$  weights were on variables of rated effect on treatment methods and on the community in general. Both of these variables proved to be significant ( $p < .01$ ) predictors of the number of people per service. That is, as the number of services increased, caregivers' ratings of the impact on treatment methods increased, and ratings of the effect on the community in general decreased. With more available services, there was a greater impact on treatment methods but a lesser impact on the community in general.

The final analyses performed were Chi-Squared tests of significance, examining differences in responses to the following five questions :

- Q.6 Have you used the telephone service?
- Q.7 Have you used the education service?
- Q.9 Have you encountered difficulties?
- Q.10 Can you suggest any changes?
- Q.15 Have you admitted anyone to Baillie Henderson Hospital?



Table 21

Multiple Regression of Eight Caregiver Variables on  
the Number of People per Service

---

Correlation	.4770
Squared Multiple Correlation	.2275
F (8, 74)	2.724
	p < .05

Items with  $\beta < .1$

1. Group membership	-
2. Knowledge of the clinic	-
3. Clinic usage	-
4. Overall rating	-.1846
5. Effect of treatment	.3209
6. Personal attitude to MI	.1122
7. Population attitude to MI	-
8. Effect on the community	-.3962

---

Differences between towns on these questions were non-significant. However a significant proportion of respondents had (a) not used the education service ( $p < .001$ ), (b) not encountered difficulties ( $p < .001$ ), and (c) could not suggest any changes ( $p < .001$ )

### Discussion

The results indicate that the travelling clinic is being perceived as having an impact on the rural communities. Whilst the service is rated as effective, overall ratings of impact seem to be surprisingly low. Such responses may be indicating a perception by the rural workers of the transience of the service's effectiveness. That is, it is only in town one or two days per month and for the rest of the month they must cope on their own, as before.

Table 19 shows that 10.8% of the caregivers were not even aware of the existence of the service. This proportion as stated previously, was made up of clergy and police chiefs who had been transferred recently to the town. However, such a proportion strongly suggests the need for more regular contact with all of the local agencies, whether they refer clients or not.

As well, it may be useful to provide more descriptive literature to each caregiver. A typed sheet detailing information about the travelling service was distributed to each respondent during the needs surveys. It appears this is not sufficient and some more prominent, and regular, form of publicity may be necessary.

The significant results from the discriminant analysis show that as the impact on the community increases, so do the ratings of changes in personal and community attitudes. Such a finding makes sense as any caregiver who rates the service as changing both theirs and the community's attitudes to mental illness, is likely to perceive the service as having a significant impact.

A far more surprising result was obtained from the second discriminant function. It suggests that as the caregivers' usage of the clinic and overall ratings increase, their rating of the effect on their treatment method decreases. Thus, someone who uses the clinic frequently, rates it highly, but perceives it as having little effect on their own treatment methods. This result may be reflecting an attitude often seen in outreach programs where the caregiver is glad to refer difficult cases on, and then to

minimise their contact with that patient (Bentz et al., 1969). This seems to stem from the feeling of isolation of rural workers and the lack of alternative referral options.

It may also suggest that as rural agencies' knowledge of the team increases, the magical aura surrounding psychiatric services disappears. The caregivers come to recognise that the service cannot provide "miracle cures" nor previously unseen insights. They then see the clinic as simply another form of available treatment. Once the service has lost its mystery it may be rated as having less impact.

An alternative explanation may be that some practitioners are utilizing the consultation/education aspects of the team appropriately and rather than referring clients, are obtaining benefit by using the service as a resource base. In this case, low usage could be associated with a high impact on treatment methods. The low overall rating is difficult to equate using this model, but may be indicating the caregivers' desire to see changes in the service to increase the frequency of visits, more staff, or consultation time.

The Neuman-Keuls test results showed Roma health care workers believed the travelling service had a



greater effect on the community than did workers in Dalby and Warwick. This effect was reflected in the attitudes of caregivers in the three communities, with Roma personnel taking a much greater interest in the services offered. An explanation for this is unclear, but it may relate to the small population of Roma combined with some early successes the team had with several difficult, well-known referrals.

Results of the Multiple Regression analyses do not support the findings of previous research. The present results evidenced no differentiation in attitudes towards mental illness as a function of distance. Smith (1981) showed that as distance from large psychiatric facilities increased, positive attitudes toward mental illness decreased. Such a discrepancy may be explained by the large distances involved in the present study as compared to the minimum distance of 50 kms in Smith's study. As discussed early in this thesis, there are no published reports based on distances comparable to those in the present study.

An alternative explanation may be related to the fact that the question asked about "change in attitudes toward mental illness". It is possible that the surveyed caregivers may have already held positive

attitudes toward the mentally ill, and the presence of the team did little to improve them.

The second regression analysis showed that as the number of services increased, the rated effect on treatment methods also increased. Thus, when more helping agencies were present in the community, the caregivers perceived a greater influence on their treatment methods. A possible explanation may relate to the isolation of the helper. When a caregiver is operating in a sparsely serviced town, they are often required to develop skills in fields apart from their own to compensate for the lack of alternative referral agencies. These competent and, by necessity, self-supportive workers may have been less affected by the introduction of a new service because they were already dealing adequately with a psychiatric caseload.

The other result from the analysis showed that as the number of services increased, so the impact of the travelling service on the community decreased. Such a finding supports the notion that a well serviced community is fairly stable in its ability to cope with disordered behaviour and therefore will experience little change with the introduction of a new service.

The individual question analyses yielded information which confirmed perceptions of the team's function. A significant number of caregivers said they had not used the education component of the service, corroborating the results in an earlier section of the evaluation. This clearly indicated the need for an increased emphasis on this aspect of service provision. Overall, the predominantly negative answers to both questions about suggested changes and difficulties with the service is encouraging to the functioning of the team. It appeared most caregivers were generally satisfied with the current structure of the service.

## CHAPTER 11

## IMPACT ON BAILLIE HENDERSON HOSPITAL

Hagedorn and his co-authors (1979), in their manual on evaluation, state that one of the primary goals for community-based services should be "to replace custodial, distant state hospital care with comprehensive community care" (p.243). They recommend that evaluation be carried out by monitoring changes in admission and discharge rates, and changes in the patterns of admissions, i.e., diagnosis and length of stay.

Several studies have examined the impact of rural community clinics on state hospital admission rates but none have specifically dealt with the effect of a travelling clinic. Each of the reported studies describes the influence of permanent, rural community based facilities. There is no published research from Australia on this topic.

Hopple and Huessey (1954), in their review of the travelling team model, suggested that one of the functions of a mobile service should be to prevent inappropriate admissions and to minimise the duration of admission. They did not provide any data on the



effectiveness of their service in meeting these goals.

The impact of a community centre for intellectually handicapped children was examined in terms of admission to a state mental hospital (Wolford, Hitchcock, Ellison, Sonis & Smith, 1972). It was found that admission rates did not change over two years, but appropriate utilization of the hospital facilities increased.

Decker and Shealy (1973) compared admission rates to large psychiatric hospitals from rural communities with mental health clinics and without. The authors found communities with clinics had lower rates of admission, and interpreted this as showing a positive impact of the community based programs.

Dyck (1974) described the effect of a community clinic in a rural area of Kansas. He found that over a 12 year period from the establishment of the clinic, the hospital admissions rate had dropped by 38%, as well as a reduction of 55% in the length of stay. By comparing his figures to state averages, he postulated the rural clinic was having significant impact.

A study on the impact of a rural day hospital found a reduction in admission rates to the nearby psychiatric hospital of 22% (Shires, 1977). No comment was made on the nature of the changes.

Billings (1978) researched the effect of a community mental health centre-based screening program on hospital admissions and found a 10% reduction in admission rates. Billings suggested that as well as reducing overall admissions, the appropriateness of the admissions also improved.

Two further studies support the hypothesis of community services reducing admissions to state hospitals (Hoagland, 1978; Reding & Maguire, 1973). However in both papers it is not clear whether the reduction in admission rates to the state hospitals is matched by an increase in hospitalization at the local levels. Despite this uncertainty, Reding and Maguire provide evidence that a reduction to a median length of stay of 30 days in hospital was achieved.

In contrast to the previous studies, several researchers have found no significant changes in admission rates despite the introduction of community based programs (Annes & Tullos, 1976; Hargreaves & DeLay, 1979; Miles, 1980). These authors each postulated that although there was no decrease in total admissions, admissions from the rural areas were more appropriate and characterized by a shorter length of stay. None of the studies provided data to support these claims.

The present study is aimed at evaluating the impact of the travelling service on Baillie Henderson Hospital admissions. Impact will be assessed by measuring changes in the number of admissions, type of admissions and length of stay.

#### Method

Data were collected on all admissions to Baillie Henderson Hospital from 1.1.78 to 31.12.84. The age, sex, diagnosis, length of stay and home address of all patients were recorded.

#### Results

During the period under study, 29.9% of the total admission to Baillie Henderson Hospital were from the rural catchment area. Table 22 provides a breakdown of the changes in this proportion over time. Chi-Square analyses of these data showed there were no significant differences between any time periods, both before and during the operation of the travelling clinics. That is, there were no significant changes in the proportion of people admitted from rural areas either before and after the introduction of the service, or between the proportion of people admitted in each six-month period during the operation of the service.

Chi-Square analyses of the proportion of people

Table 22

Admissions to Baillie Henderson Hospital  
from the Rural Catchment Area 1978-1984 (%)

Year	Sex		
	Males	Females	Total
1978	35.0	37.7	36.3
1979	24.9	28.5	26.4
1980	28.4	28.4	28.4
1981	25.1	21.6	23.7
1982	26.8	28.4	27.6
1983	35.3	34.7	35.0
1984	37.9	29.7	34.6
	—	—	—
	30.7	28.6	29.9

Note: The column totals are expressed as the proportion of patients admitted since the travelling service commenced.



admitted from each clinic's catchment area yielded a significant result ( $\chi^2(5) = 14.5$   $p < .05$ ). This result was interpreted as indicating that most people were admitted from the Dalby and Warwick areas and fewest people were admitted from Goondiwindi.

When the proportion of people admitted from each area was qualified by the population of that area, a significant difference emerged ( $\chi^2(5) = 17.4$   $p < .01$ ). This was interpreted as showing that proportionally more patients were admitted from Warwick and Stanthorpe areas, and fewer patients were admitted from Goondiwindi than could reasonably be expected.

The age of people admitted from rural and non-rural areas can be seen in Table 23. Chi-Square analyses of the proportion of each age group yielded two significant results. Firstly, significantly more 25-29 year olds were admitted to hospital from rural areas ( $\chi^2(1) = 12.37$   $p < .01$ ) and secondly, significantly fewer 55-59 year olds were admitted ( $\chi^2(1) = 6.02$   $p < .05$ ). This means, in proportion to the total number of people admitted from rural areas, there were more 25-29 year olds and fewer 55-59 year olds than expected.

Table 23

Age of Admissions to Baillie Henderson Hospital from Rural Areas  
(1.7.80-31.12.84)

Age	0-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60+	Total
Total Admissions	6	69	125	91	106	118	115	85	109	103	415	1342
% from Rural Areas	-	30.4	36.0	46.2	30.2	29.7	29.6	24.7	22.9	18.4	28.9	29.4
Mean No. of Admission /Year from Rural Area	-	4.7	10	9.3	7.1	7.8	7.6	4.7	5.6	4.2	26.7	87.6

Table 24 shows the proportion of each diagnostic category admitted from the rural catchment areas. Chi-Square analyses yielded two significant results. Firstly, fewer people were admitted to hospital with a diagnosis of psychosis than would have been expected ( $X^2(1) = 7.6$   $p < .01$ ). Secondly, significantly more people with a diagnosis of anxiety were admitted ( $X^2(1) = 11.32$   $p < .01$ ). Each of these analyses were performed on individual diagnostic categories rather than the grouped categories used in previous analyses.

Average length of stay in Baillie Henderson Hospital from 1970 - 1984 is shown on Table 25. Data from this period were only available in the blocks of 1970 - 1979 and 1980 - 1984 due to a central records computer programming malfunction. The original data, by year, were irretrievable. A Chi-Square analysis of these figures showed a significant difference between average length of stay in 1970 - 1979 and 1980 - 1984 ( $X^2(1) = 5.7$   $p < .05$ ). This difference was interpreted as indicating the length of stay for patients from rural areas has significantly increased by an average of four weeks since the introduction of travelling service.

Table 24

Diagnosis of Admissions to Baillie Henderson Hospital  
from Rural Areas (1.7.80 - 31.12.84)

---

Diagnostic Category	N	%
<hr/>		
1. Organic	37	94.9
2. Psychosis	146	37.06
3. Anxiety	68	17.26
4. Personality	98	24.87
5. Marital	4	1.02
6. Other	41	10.41
	<hr/>	
Total	394	

---



Table 25

Average Length of Stay in Baillie Henderson  
Hospital (1970-1984) in Weeks

	1970-1979	1980-1984
From Rural Area	12.4	16.6
Total Admissions	53.1	29.8

### Discussion

In overall terms, the introduction of the outreach psychiatric clinics appears to have had little effect on the number and types of admissions to Baillie Henderson Hospital. No statistically significant changes were found in the number of admissions when comparing rates for pre- and post-service introduction, or as the service was gradually expanded. Such findings seem to support the arguments of those authors claiming outreach programs do little to affect overall admission rates (Annes & Tullos, 1976; Hargreaves & DeLay, 1979; Miles, 1980).

As further reported by these researchers, there have been some changes in the types of people admitted. More young people (25-29) and fewer older people (55-59) were admitted from rural areas during the period of this study. There is no obvious reason for this change, but it may stem from a previous reluctance of young people to travel far from family and friends for treatment. Greater community liaison and continuity of care by the team may have induced more younger people to travel to hospital.

The reduction in admissions for older patients may relate to increased community based skills in dealing

with problems of the more aged members of the population, e.g., Alzheimers disease. Such problems may be more efficiently dealt with at the local level with support from the team.

Results from the admission statistics on diagnosis yielded the opposite to what most authors have postulated. It was expected that outreach services would tend to increase the proportion of more disturbed individuals and decrease the number of less disabled patients. The present data do not support such a notion and indicate the reverse is in fact happening.

The higher proportion of neurotically depressed people being admitted could be explained in two ways. It may be the result of rural caregivers increasing their referrals of self-harming individuals for admission. This could result from their increased awareness of available treatments for such cases and the long gaps between visits of the travelling service. Thus if a suicide attempt occurred, they may have referred the case immediately for hospitalization rather than waiting for the team's next visit or trying to treat it themselves as they may have done in the past.

An alternative explanation may be the difficult

nature of many of these cases, in terms of caregiver time and frustration. Hospitalization may be utilized as a sort of respite care, to allow local workers a break from demanding cases.

Examination of the results obtained when analysing the proportion of admissions from each clinic area proved interesting. Stanthorpe and Warwick were found to admit proportionally more patients than other areas. This could be due to the good working relationship experienced by the clinic staff with local caregivers in these towns. The significantly lower admission rate for patients from the Goondiwindi area could be explained by the negative attitudes of local staff to the team, and their predilection for referring cases to private practitioners rather than to government facilities.

The analysis of changes in the duration of admission provided unexpected results. All studies which have addressed this issue stated (with data or without) that the average length of stay in hospital decreased with the introduction of outreach programs. On the basis of the current results, it could be tentatively suggested that in fact the opposite occurred.



One possible explanation is that the mobile clinic may have uncovered some long term patients being cared for in local hospitals, and referred them for more appropriate placement at the psychiatric hospital. It would only have required one or two of these patients staying a number of years in hospital to artificially raise the average length of stay.

As well it must be cautioned that due to the broad nature of the data format, large amounts of qualitative information have been lost. The computer malfunction which caused the length of stay data to be available only in ten year blocks, severely limited any meaningful interpretation. It would certainly be preferable to repeat the analyses with more finely demarcated data.

SECTION D

EVALUATION OF THE SERVICE

## CHAPTER 12

## ASSESSMENT OF THE EVALUATION MODEL

The preceding sections have traced the creation, functioning and evaluation of a new model of mental health service delivery in rural areas of Australia. Section A described the current status of evaluation research, and proposed a model of evaluation to assess the impact of a new type of service. Section B reviewed the literature on rural psychology and examined the evidence for rural areas being significantly different from urban environments. The unique features of rural Australia were discussed, as were the characteristics and perceived needs of the rural communities under study. Section C described the creation and functioning of the travelling psychiatric service. The impact of the service was assessed and research findings presented.

The present section could be described as the feedback loop of the evaluation model. It provides a summary of the total evaluation and examines the results in terms of their implications for the present, and future, services.

The results will be used to compare the uniqueness and effectiveness of the current model to

other services elsewhere in the world. Fit and usefulness of the evaluation model will be examined to assess its utility in providing a framework for decision making. The extent to which the service achieved its prescribed goals will be discussed. Finally the chapter will conclude with a list of recommendations for future research.

#### Unique Features of the New Service

Throughout the current study it has been proposed that the travelling clinic model is the most appropriate model for mental health services in rural Australia.

As described earlier, several authors have criticised the effectiveness of a travelling clinic model and argued that, at best, such service provision is a poor substitute for permanent facilities (Gould, 1969; Hopple & Huessey, 1954; Huessey, 1972; Miles, 1980). However, the present research has suggested that a travelling service can provide effective care for mentally disturbed individuals in distant rural communities. In fact, the evidence strongly suggests that in a setting such as the Australian outback, travelling clinics may even be the preferred mode of service provision. The nature of Australian rural catchment areas is so



vastly different from those found elsewhere in the world that previously desired features such as permanently based staff and treatment facilities would become both inefficient and unnecessary.

The significant differences between this service and those reported in the literature were that it was (a) a travelling clinic, and (b) staffed by a multidisciplinary team. Each of these differences will now be discussed in more detail.

#### Travelling Service.

The deliberate use of a travelling psychiatric clinic, in the absence of any permanently based staff or facilities, is unique in the rural literature. All travelling teams which have been discussed possess at least one staff member permanently based in each community, whose job it is to screen referrals and co-ordinate the operation of the service (Hopple & Huessey, 1954; Miles, 1980). In the case of the present service, this idea, whilst not financially permissible, was also felt to be unnecessary. Local health care workers, usually Community Health nurses, were recruited to act as team representatives in the team's absence, and were encouraged to remind referrers of imminent visits, coordinate appointments and distribute information about the team where appropriate. Referrals became more appropriate as

caregivers developed a more accurate awareness of the team's capabilities. Local information was available to team members through these representatives and they also provided a valuable feedback mechanism to some local helping agencies.

#### Use of a Multidisciplinary Team.

Of the literature reviewed dealing with travelling teams, only one study described a mobile clinic being operated by a multidisciplinary team (Hopple & Huessy, 1954). This service, in Colorado, operated with two psychiatrists and a psychologist travelling to distant rural towns. Each town was permanently staffed with either a social worker or psychiatric nurse. No other study describes a service where professionals other than psychiatrists travel to rural areas.

The present study is notably different from all others in that a diverse multidisciplinary team of a psychiatrist, medical officer (psychiatric registrar), psychologist, social worker and psychiatric nurse travel to each centre. The effect of the broader range of staff members is difficult to objectively assess, but subjectively it provides the opportunity for greater flexibility and scope in outpatient treatment of psychiatric disorders.

Each team member was expected to fill two roles. Firstly they were a specialist therapist in their own area of professional expertise. Secondly, each member was required to be a generalist therapist who could obtain and compile standardised case histories, act as a co-therapist in a variety of interventions, and present talks/seminars to various audiences on a variety of topics. It was believed that using a multidisciplinary team provided a better and broader combination of generalist and specialist skills than previous models which utilized only one or two groups of professionals.

The demands for each team member's specialist skills varied from town to town and across time. A usual pattern was for most referrals to come initially to the team's medical personnel. As the clinics became more established in each community, local caregivers came to know of the skills of other team members and began to refer clients for a broader range of specialist assessments and treatments.

During the greater part of the current study, all team members were fully booked at each clinic. This evidence strongly suggests the efficiency of providing a multidisciplinary team rather than, as suggested in the literature, a predominantly medical service.



Thus it can be seen that the areas of difference from previous reported services make the South West Queensland and Darling Downs Regional Psychiatric Service a unique form of mental health service provision. The evidence from the current study suggests that despite the differences from conventional models, the travelling multidisciplinary team approach is effectively and efficiently providing mental health services to rural Australian communities.

#### Fit and Usefulness of the Evaluation Model

Overall, the composite evaluation model used in the present study provided an appropriate and effective framework to structure the evaluation. As detailed in Chapter 1 Stufflebeam's (1973) CIPP model was combined with Scriven's (1973) formulations of a value free model to create an evaluation framework. This structure permitted decision making in the absence of predetermined evaluation values and also allowed the evaluation to be an integral part of the decision making process.

Using the guidelines of this model, the Context evaluation was represented by (a) a literature review of rural environments, (b) an account of the creation of the new service, and (c) needs assessments of the rural areas. The Input phase was a description of the



way in which the travelling service operated. Process evaluation occurred when the parameters of the service were recorded and analysed. Finally the Products evaluation stage consisted of the assessment of client satisfaction, and the impact on the rural communities and Baillie Henderson Hospital.

Decisions emanating from the four phases of the evaluation occurred in two decision making settings, Incremental and Neomobilistic. Incremental decisions were made frequently during the evaluation as regular information feedback led to small, stepwise changes in the running of the service. These changes concerned factors such as the frequency of clinic visits, duration of appointment times, admission policy and clinic locations.

Neomobilistic decisions occurred predominantly in the early stages of the program as decisions were made to effect large changes with only a low level of information grasp. Such decisions involved choices of towns to be serviced, team structure, funding allocation and resource provision.

Both of these decision making settings were characterised by a low level of information grasp. As stated throughout the thesis this occurred due to

the minimal amount of research in the field, combined with the unique features of the catchment area. Greater levels of information comprehension were not possible because there was no firm basis of comparison and little similarity to other projects reported in the literature.

As formulated in the evaluation model, the evaluation process operated in a continuous feedback loop. During the course of the study, relevant information was regularly presented to the appropriate decision makers as an ongoing quality control system. Decisions were constantly being made by team members, hospital administrators and local caregivers to improve the efficiency of the service.

Modification of Stufflebeam's original model to incorporate Scriven's recommendations for value-free evaluation provided a useful structure to expand the scope of the project. It allowed consideration of all the value judgements inherent in the evaluation and permitted the evaluation to be part of the decision making process. This was important, as the evaluator was often the best qualified decision maker who could offer detailed knowledge of the characteristics of the rural towns and had direct personal experience in the team's functioning.

As discussed by several authors, theoretical evaluation models can be interpreted in a number of ways and this can lead to underutilization of the results (Weiss, 1977; Williams & Evans, 1969). The use of Patton's (1978) recommendations to increase evaluation utilization was successful. Each of his five suggestions will now be discussed and their utility for the current research assessed.

1. Identification of the relevant decision makers and information users.

These people were identified and grouped into three categories. The first group comprised hospital administrators and senior State Health Department personnel who had ultimate responsibility for the functioning of the service. Secondly, the caregivers and health care workers in the rural communities were identified as persons who may benefit from evaluation information. Thirdly, members of the travelling team were seen as a key group requiring dissemination of the knowledge.

The results of the present study were communicated to the above groups via:-

- (a) Written reports;
- (b) Professional seminars;
- (c) Public meetings.

2. Selection of evaluation questions.

This step was achieved in the early stages of the evaluation by consultation with members of the three identified groups of decision makers. Representatives of each group were asked what sort of information they required to make decisions about the service.



3. Selection of evaluation methods to generate useful information.

The selection of evaluation methodology was the responsibility of the evaluator, and information gathered in the previous two steps proved valuable in choosing the aspects of the service to evaluate.

4. Participation of information users in data analysis and interpretation.

Regular meetings were held with the information users during the data analysis stage to ensure the data were presented in an understandable format. Requests for specific information, unrelated to the primary evaluation goals, were acceded to wherever possible.

5. Cooperation of evaluators and decision makers in dissemination of results.

Several feedback sessions, organised jointly by both the evaluator and decision makers, have taken place. Feedback from these sessions suggested that the information users were obtaining data of a nature and in a form which they were prepared to use.

On the basis of the preceding analysis it appears as though results from the study are likely to be utilized by relevant decision makers. Patton's



philosophy of involving, and thereby committing, decision makers in the thrust of the evaluation has been achieved. It is likely that the results will be used to assist in future decision making.

To summarize, the modified Stufflebeam (1973) CIPP model of program evaluation proved to be a usable and effective framework with which to structure the present evaluation. Patton's (1978) recommendations to improve utilisation were adopted, and found to be valuable in generating decision makers' (primarily hospital administrator's) commitments to the success and use of the evaluation.

#### Achievement of Prescribed Goals

The goals for the South West Queensland and Darling Downs Regional Psychiatric Service were generated and operationalized by the evaluator and Baillie Henderson Hospital administrators at an early stage of the evaluation. Before assessing the extent to which these goals have been achieved it will be useful to review the relevant findings of the current study. In the interests of brevity these will be presented in point form.

#### Characteristics of the Service

Service was evaluated over 5 years of operation  
(1980 - 1984)

762 new cases were assessed.

These generated 2668 patient contacts.

One in five people failed to attend their appointments.

Local medical personnel were the primary referral source (62%).

On average, two seminars per clinic per year were presented.

539 patients were discharged (70.6% of total admissions).

#### Characteristics of the Patients

Most patients were female (61.1%).

Most patients were married (50.3%).

Most common diagnosis was Anxiety Disorders (43%).

Psychosis next most common diagnosis (17.8%).

Psychotic patients were treated for longer, more often and more likely to be referred elsewhere.

#### Type of Treatment Provided

Average duration of contact was 8.8 weeks.

Average number of contacts was 2.8

Average number of non-patient contacts was 2.1.

Majority of discharged patients received some form of intervention (74%).

26% of patients assessed were referred elsewhere.

Most common treatment received was individual therapy (36.1%).

Most common outcome was that patients left with their problems resolved (33.5%).

Patients notifying the clinic before leaving were seen less often, for less time.

As distance from Toowoomba increased, number of contacts with each patient decreased.

#### Clients' Ratings of Service

Clients rated service as having positive effect on their problems.

Most patients were satisfied with the treatment they received (90.4%).

Patients with marital disorders rated the service as less effective.

Patients with psychotic disorders rated the service as most effective.

#### Impact on the Community.

Caregivers rated the overall service positively.

Caregivers rated the impact on rural communities as negligible.

Most caregivers had not used the education component of the service.

Most had not encountered difficulties.

All stated it was a worthwhile idea.

10.8% were unaware of the existence of the service.

### Impact on Baillie Henderson Hospital

The number of admissions to Baillie Henderson Hospital did not significantly alter after the creation of the service.

More young people (25-29) and fewer older people (55-59) were admitted from rural areas.

More neurotic disorders and fewer psychotic disorders were admitted.

Length of stay in hospital increased after the creation of the service.

The extent to which each of the goals has been achieved will now be discussed.

Goal 1. To increase access to psychiatric services in the various communities of south-west Queensland by the provision of a multidisciplinary team specializing in the assessment and management of psychiatric and related problems.

The first and most basic of the services' goals was met. The multidisciplinary team was created and has provided services to communities throughout the region. Over the five year period, 762 new patients were assessed in the rural areas. Outpatient statistics from Toowoomba agencies suggest this represents an enormous



increase in cases assessed from region. Thus it appears that the introduction of the travelling service has significantly improved access to psychiatric services for people in the rural areas.

Goal 2. To provide direct intervention for psychiatric and related problems.

This goal has been assessed as being achieved. Of the 539 patients discharged from the service during the study, 74% received some form of direct clinical intervention. That is, they received individual, marital, family or drug therapy.

The remaining 26% of clients discharged were assessed as being unsuitable for treatment by the travelling clinic and referred to more appropriate agencies. Such a function of the team, a clearing house role, could also be considered as a form of direct intervention.

Goal 3. To provide early assessment and screening of patients to be admitted to Baillie Henderson Hospital in order to minimize inappropriate admissions.

This goal has been judged as not being

achieved. The data indicate there was no significant change in the number of admissions to Toowoomba hospitals since the inception of the service. Whilst supported by the evidence of some North American studies, this finding is still surprising, given the high proportion of treatment performed in the local communities.

The data also indicate that there are relatively fewer seriously disturbed cases and relatively more less serious cases being admitted. These findings are in direct opposition to the goals of the service.

It may be that these trends are unrelated to the operation of the service, but without further research it must be assumed that the travelling clinic has failed to meet this goal.

Goal 4. To provide better follow-up of discharged Baillie Henderson Hospital patients, and support for their families, in order to reduce the length of hospitalization.

This goal, like the previous one, is judged not to have been met. Data suggest the length of admission has increased since the service began and such a finding is the antithesis of the set goal.

The service may be providing better follow-up of discharged patients (which account for 14% of total clients) but such action is not directly affecting the length of stay in hospital.

Goal 5. To improve communication between Toowoomba based facilities and health care workers in rural areas.

Goal 5 was judged to have been achieved to a moderate extent. As reported in the results, caregivers were generally satisfied with the communications between themselves and Toowoomba agencies. Some criticisms were raised about delays in receiving information direct from other Toowoomba-based agencies, but opinions were highly positive regarding information received via the members of the travelling service.

It appears as though the service has improved communications when used as the transport medium. Direct contact with other agencies did not improve markedly. Therefore the goal is judged to be only partially achieved.

Goal 6. To offer consultation, support and education for groups and individuals working with a psychiatric caseload in the rural communities.

There was partial achievement of this goal. Consultation and support have been achieved but the provision of education services to rural areas has not been met.

Consultation and support were judged to have been obtained given the high proportion of non-patient contacts. For every three visits of the patient, the referral source or other community agencies were contacted twice. As well, caregivers rated the service in a positive fashion and 100% of those assessed stated the service was worthwhile.

The educational aspect of the travelling clinics was judged to have failed to reach its goal due to the low rate of seminar presentation (1 per clinic per year) and the significant number of caregivers who had not used this part of the teams' function.

Goal 7. To determine specific community needs and, where appropriate, establish and support the development of services to meet these needs.

In an overall sense, this goal was judged to have been successfully achieved. Needs surveys were carried out in four of the six communities serviced. A large proportion of the expressed needs were met. This was judged to be the case on



the evidence of caregiver ratings of the overall service and a significantly low number of survey respondents who requested any sort of change to the mode of service provision.

Goal 8. To evaluate the service on a regular basis to assess its effectiveness in meeting the stated goals.

It is judged this goal has been achieved by the present study, and the evaluation framework provides for ongoing review and assessment of progress.

#### Summary.

In overall terms it is judged that the travelling psychiatric service has achieved its stated goals. Each of the goals relating to service provision and impact on the rural communities has been achieved successfully. Those goals concerned with improving the functioning of Toowoomba-based facilities have not been as successfully met. The reason for this is not clear but it seems to suggest the necessity for greater improvement in communications between the rural caregivers, the Toowoomba agencies, and the travelling team.

#### Recommendations for Future Services

1. Fully assess the area and population to be serviced.

It is important to obtain an accurate profile of the intended catchment area and population before commencing any form of operation. Census results provide easily obtainable data on population characteristics such as age ranges, sex, marital status, economic status and ethnic background. Such data permits prediction of the proportions of high risk groups in the population.

## 2. Perform personalized needs surveys.

The carrying out of needs surveys provided an invaluable first contact with the caregivers in each community. Not only could their needs be assessed but at the same time they could be educated as to the operation and composition of the travelling team.

Needs surveys, of the format used in this research, permitted an analysis of the referral pathways, skills of the individual caregivers and an indication of the type of psychiatric caseload they encounter. A similar format of surveying is recommended.

The degree of cooperation and increase in knowledge (of both caregivers and team members) increased dramatically as a direct result of the

personal contact interest in the survey format.

3. Emphasize consultation with local medical personnel.

These caregivers accounted for 62% of the total referrals and are judged to require the greatest proportion of support and consultation. In many of the rural towns, the local medical practitioners felt isolated and inexperienced in dealing with psychiatric problems, yet they were the caregivers treating the cases most often.

Other caregivers in the towns should not be neglected but there should be an emphasis of support toward the caregivers in greatest contact with mentally-ill people, usually the medical personnel.

4. Increase the educational component of service provision.

Research from elsewhere in the world showed quite clearly the efficacy of education in the overall treatment approach toward mental illness. This aspect was largely ignored in the current service due to staffing and time limitations. In the opinion of the author this form of input to the rural communities should be increased substantially and broadened to include as many non-professional groups as possible.

##### 5. Provide continuity of care.

It is regarded as important to provide a cohesive and continuous system of care for patients admitted from the rural areas. Ideally patients should be assessed prior to admission (or the team contacted and the admission negotiated) and then close contact maintained with the patient during admission.

Discharge and follow-up should be at the discretion of the travelling service, who would also assume responsibility for maintaining contact with the referral source and home town relatives.

Such a procedure should minimize inappropriate admissions and admission duration. As well, rural caregivers would obtain prompt feedback on the patient's progress and treatment.

##### 6. Regular evaluation of the service.

Regular evaluation is essential to provide meaningful feedback to the decision makers and to make the service accountable for its resource usage. Some recommendations for effective evaluation are -

(1) Select an evaluation framework which permits decision making.

(2) Use utilization-focussed evaluation techniques



- (3) Collect data in terms of individual clients - not the location where they were treated. Computer spread sheets would be ideal for this purpose.
- (4) Store all data in a form where it is easily and quickly accessible.
- (5) Feedback results of evaluations to local caregivers as well as to administrative decision makers.
- (6) Designate evaluation as part of a team member's job description and allocate appropriate time and resources for it to be carried out.

#### Areas of Future Research

The present study has served the function of an introductory evaluation of a novel approach to the provision of mental health services in rural areas. The scope of the service was so broad it necessitated severe limitations on the quantity of data which could be meaningfully presented.

Some areas of future research are :

1. Examine the functioning of the service after a greater number of years of operation.
2. Assess the cost-effectiveness of the service model.
3. Investigate the critical factors in service provision to rural areas, i.e., does the

service differ with factors other than distance from facilities or existing number of services?

4. Assess the impact of the service on other areas of the community, e.g., crime rate, medication prescription rate or local attitudes toward mental illness.

## REFERENCES

# REFERENCE LIST

- Aanes, E., & Tullos, D. (1976). An analysis of the mental health centres on hospital admission rates. Hospital and Community Psychiatry, 27, 240.
- Anderson, R.C. (1969). The comparative field experiment : An illustration from high school biology. Proceedings of the 1969 Invitational Conference on Testing Problems. Princeton, N.J. : Educational Testing Service.
- Armstrong, B. (1977). The President's commission on mental health : Assessing the needs of a nation. Hospital and Community Psychiatry, 28 (9), 677-682.
- Bachrach, L.L. (1977). Deinstitutionalization of mental health services in rural areas. Hospital and Community Psychiatry, 28 (9), 669-672.
- Bachrach, L.L. (1983). Psychiatric services in rural areas A sociological overview. Hospital and Community Psychiatry, 34 (3), 215-226.
- Baron, R.C. (1981). Changing public attitudes about the mentally ill in the community. Hospital and Community Psychiatry, 32 (3), 173-178.
- Bates, E.M. (1977). Models of madness. St.Lucia, Queensland University of Queensland Press.
- Ben-Tovim, D.I. (1983). A psychiatric service to the remote areas of Botswana. British Journal of Psychiatry, 142, 199-203.
- Bentz, W.K., & Edgerton, J.W. (1970). Consensus on attitude toward mental illness : Between leaders and the general public in a rural community. Archives of General Psychiatry, 22, 468-473.
- Bentz, W.K., Edgerton, J.W., & Kherlopian, M. (1969). Perceptions of mental illness among people in a rural area. Mental Hygiene, 53 (3), 459-465.
- Berry, B., & Davis, A.E. (1978). Community mental health ideology : A problematic model for rural areas. American Journal of Orthopsychiatry, 48 (4), 673-679.
- Berry, J. (1979). Distance as a factor in patient transport by air ambulance. In R.Walpole (Ed.) Rural health Proceedings of the Royal Australian College of General Practitioners Conference, 1979. Melbourne Academic Press.



- Beruldsen, J. (1978). Rural adjustment and the social worker. Australian Social Work, 31 (2), 15-20.
- Billings, A. (1978). The impact of a community screening program on psychiatric hospital admissions. American Journal of Community Psychology, 6(6), 599-605.
- Bowen, W.T., Twemlow, S.W., & Boquet, R.E. (1978). Assessing community attitudes toward mental illness. Hospital and Community Psychiatry, 29 (4), 251-253.
- Bradshaw, J. (1977). The concept of social need. In N. Gilbert, & H. Specht (Eds.) Planning for social welfare : Issues, models and tasks. Englewood Cliffs, New Jersey : Prentice Hall.
- Burvill, P.W., & German, G.A. (1984). Estimated manpower requirements for psychiatrists in Australia 1980-91. Australian and New Zealand Journal of Psychiatry, 18, 53-61.
- Burvill, P.W., Raymond, J., Stampfer, H., & Carlson, J. (1982). Relationship between country of birth and psychiatric admissions in Western Australia. Acta Psychiatrica Scandinavia, 66, 322-330.
- Burvill, P.W., Stampfer, H., & Raymond, J. (1984). Rural psychiatric services in Western Australia. Social Science Medicine, 18, 991-996.
- Burvill, P.W., Stampfer, H., Raymond, J., & Carlson, J. (1982). Comparison of psychiatric admissions between city and country residents in Western Australia. Australian and New Zealand Journal of Psychiatry, 16, 253-258.
- Buxton, E.B. (1973). Delivering social services in rural areas. Public Welfare, 2, 15-20.
- Cameron, R.J. (1983). Census of population and housing, 30 June 1981 : Persons and dwellings in local government areas and urban centres (A.B.S. Catalogue No.2403.0). Canberra : Commonwealth Government Printing Office.
- Cathell, J.L. & Stratas, N.E. (1967). Mobile psychiatric consultation : Education for primary physicians. Community Mental Health Journal, 3, 226-230.

- Clark, A.W. (1976). (Ed.) Experimenting with organizational life : The action research approach. New York : Basic Books.
- Clayton, T. (1977). Issues in the delivery of rural mental health services. Hospital and Community Psychiatry, 28 (9), 673-676.
- Cohen, J. (1972). Effects of distance on use of outpatient services in a rural mental health centre. Hospital and Community Psychiatry, 23 (3), 27-28.
- Coleman, J.V., & Switzer, R.E. (1951). Dynamic factors in psychosocial treatment in travelling child guidance clinics. Mental Hygiene, 35, 386-409.
- Commission of Inquiry into Poverty. (1975). Poverty in Australia. Canberra : Australian Government Printing Office.
- Comstock, G.W., & Helsing, K.J. (1976). Symptoms of depression in two communities. Psychological Medicine, 6 (4), 551-563.
- Connell, H.M., Irvine, L., & Rodney, J. (1982). The prevalence of psychiatric disorder in rural school children. Australian and New Zealand Journal of Psychiatry, 16, 43-46.
- Copp, J.H. (1976). Diversity of rural society and health needs. In E.W.Hassinger & L.R.Whiting (Eds.), Rural health services : Organisation, delivery and use. Ames, Iowa : Iowa State University Press.
- Cumming, J., & Cumming, E. (1957). Closed ranks : An experiment in mental health education. Cambridge : Harvard University Press.
- Cutler, D.L. & Madore, E. (1980). Community - family network therapy in a rural setting. Community Mental Health Journal, 6, 144-155.
- Daniels, D.N. (1967). The community mental health centre in the rural area : Is the present model appropriate? American Journal of Psychiatry, 124, 32-37.
- D'Augelli, A.R., & Vallance, T.R. (1981). The helping community : Promoting mental health in rural areas through informal helping. Journal of Rural Community Psychology, 2, 3-16.



- Davis, K. (1949). Human Society. New York : Macmillan.
- Decker, G., & Shealy, A.E. (1973). Rates of admission to a state mental hospital in Alabama for counties with Mental Health clinics compared to those without. Journal of Community Psychology, 1, 54-56.
- DeMaria, W. (1977). From sulkies to suburbia : Some negative social consequences of rural living. In G.N.F. Gregory (Ed.), Rural people, support services and counselling. Armidale, N.S.W. : University of New England Press.
- Diener, R.G., & Young, H.H. (1961). Factors contributing to requests for mental hygiene clinic treatment by veterans with psychiatric disorders. Journal of Clinical Psychology, 17, 397-399.
- Dillman, C.M. (1982). More on identifying the rural community : How about who is rural rather than what is rural? Rural Sociologist, 2, 45-47.
- Dillman, D., & Tremblay, K. (1977). The quality of life in rural America. Annals of the American Academy of Political and Social Sciences, 429, 115-129.
- Dohrenwend, B.P., & Dohrenwend, B.S. (1969). Social status and psychological disorder. New York : Wiley.
- DuBois, P.H. (1970). A history of psychological testing. Boston : Allyn and Bacon.
- Dworin, J., Green, J.A., & Young, H.H. (1964). A follow-up study of relationships between distance from clinic, degree of disability, and requests for psychiatric treatment. Journal of Clinic Psychology, 20, 373-395.
- Dyck, G. (1974). The effect of a Community Mental Health Centre upon State hospital utilization. American Journal of Psychiatry, 13 (4), 453-456.
- Ebaugh, F.G., & Lloyd, R. (1927). The role of a mobile clinic in the educational program of a state psychopathic hospital. Mental Hygiene, 2, 346-356.

- Ebel, R.L. (1965). Measuring educational achievement. Englewood Cliffs, New Jersey : Prentice Hall.
- Edgerton, J.W. (1983). Models of services delivery. In A.W.Childs & G.B.Melton (Eds.) Rural Psychology. New York : Plenum Pressn.
- Edgerton, J.W., Bentz, W.G., Hollister, W.G., Clements, F., & Summers, G. (1970). Demographic factors and responses to stress among rural people. American Journal of Public Health, 60 (6), 1065-1071.
- Fischer, C.S. (1973). Urban malaise. Social Forces, 52, 221-235.
- Flanagan, J.C., Davis, F.B., Dailey, J.T., Shaycroft, M.F., Orr, D.B., Goldberg, I., & Neyman, C.A. (1964). Project TALENT : The identification, development, and utilization of human talents. Pittsburgh : University of Pittsburgh Press.
- Flaskerud, J.H., & Kviz, F.J. (1982). Resources rural consumers indicate they would use for mental health problems. Community Health Journal, 18 (2), 107-119.
- Flax, J.W., Wagenfeld, M.O., Ivens, E.I., & Weiss, R.J. (1979) Mental health and rural America : An overview and annotated bibliography (Dhew Publication No. 78753). Rockville, Maryland : U.S. Government Printing Office.
- Foote, D.R. (1977). Satellite communication for rural health care in Alaska. Journal of Communication, 2, 173-182.
- Garcia, L.B. (1960). The Clarinda Plan : An ecological approach to hospital organization. Mental Hygiene, 11, 30-31.
- Gertz, B., Meider, J., & Pluckhan, M.L. (1975). A survey of rural community mental health needs and resources. Hospital and Community Psychiatry. 26 (12), 816-819.
- Gilligan, J.F., & Wilderman, R. (1977). An economical rural mental health consumer satisfaction evaluation. Community Mental Health Journal, 13, 31-36.



- Gold, N. (1965). Suicide and attempted suicide in north-eastern Tasmania. Medical Journal of Australia, 8, 28-31.
- Gould, L.H. (1969). Mental health services to sparsely populated areas. Rocky Mountain Medical Journal, 66, 31-36.
- Guba, E.G. & Stufflebeam, D.L. (1968). Evaluation : The process of stimulating, aiding, and abetting insightful action. Paper presented at the 2nd Phi Delta Kappa National Symposium for Professors of Educational Research, Boulder, Colorado.
- Hagedorn, H.J., Beck, K.J., Neubert, S.F., & Werlin, S.H. (1979). A working manual of simple program evaluation techniques for community mental health centres. (DHEW Publication No.79-404). Washington, D.C. : U.S.Government Printing Office.
- Harding, T.W. (1978). Psychiatry in rural-agrarian societies. Psychiatric Annals, 8 (6), 74-84.
- Hargreaves, W.A., Attkisson, C.C., & Ochberg, F.M. (1975). Outcome studies in mental health program evaluation. In W.A.Hargreaves, C.C.Atkisson, L.M.Siegel, M.H.McIntyre, & J.E.Sorensen (Eds.) Resource materials for community mental health program evaluation : Evaluation the effectiveness of services (pp.46-149). Springfield, Virginia: National Technical Information Service.
- Hargreaves, W.A. & DeLay, E.A. (1979). Program evaluation in a rural community mental health centre. Community Mental Health Journal, 15 (2), 104-118.
- Heiman, E.M. (1983). The psychiatrist in a rural CMHC. Hospital and Community Psychiatry, 34 (3), 227-229.
- Henggeler, S.W. (1983). Needs assessments in rural areas : Issues and problems. In A.W.Childs & G.B. Melton (Eds.), Rural psychology. New York : Plenum Press.
- Hines, F., Brown, D., & Zimmer, J. (1975). Social and economic characteristics of the population in metro and nonmetro counties (Report No.272). Washington, D.C. : United States Department of Agriculture.

- Hoagland, M. (1978). A new day in rural mental health services. New Dimensions in Mental Health (DHEW Publication No.ADM 78-690). U.S. Department of Health Education and Welfare.
- Hobbs, N. (1964). Mental health's third revolution. American Journal of Orthopsychiatry, 34, 822-833.
- Hodges, A., Fritz, K. & Fassio, T.E. (1967). The realities of geographic space in rural mental health programming. Public Health Reports, 82, 386-388.
- Hopple, L.M., & Huessey, H.R. (1954). Travelling community mental health clinics : Their extratherapeutic aspects and functions. Mental Hygiene, 38, 49-49.
- Huessey, H.R. (1972). Rural models. In H.H.Barton & L. Bellak (Eds.), Progress in Community Mental Health. New York : Grune & Stratton.
- Husaini, B.A. (1983). Mental health of rural blacks in West Tennessee (Final Report). Nashville, Tennessee : Tennessee State University.
- Husaini, B.A., & Neff, J.A. (1980). Mental health in rural Tennessee : Final report of an epidemiological study of mental health needs of rural counties in Tennessee (Health Research Project). Nashville, Tennessee : Tennessee State University.
- Husaini, B.A., & Neff, J.A. (1980). Characteristics of life events and psychiatric impairment in rural communities. Journal of Nervous and Mental Disease, 168 (3), 159-166.
- Husaini, B.A., Neff, J.A., & Stone, R.H. (1979). Psychiatric impairment in rural communities. Journal of Community Psychology, 7, 137-146.
- Jeffrey, M.J., & Reeve, R.E. (1978). Community Mental health services in rural areas : Some practical issues. Community Mental Health Journal, 14 (1), 54-62.
- Jemelka, R.P., & Borich, G.D. (1979). Traditional and emerging definitions of education evaluation. Evaluation Quarterly, 3 (2), 263-276.



- Jones, A. (1983). Social welfare planning in a country town : The shire of Hinchinbrook study. Townsville, Queensland ; James Cook University Press.
- Jones, J.D., Robin, S.S., & Wagenfeld, M.D. (1974). Rural mental health centres : Are they different? International Journal of Mental Health, 3, 77-92.
- Kaiser, J., & Townsend, E.J. (1981). A community support system's use of state hospitalization : Is it still necessary? Hospital and Community Psychiatry, 32 (9), 625-628.
- Kamien, M. (1975). The social role of the community psychiatrist in rural Australia : From rejection to acceptance. Australian and New Zealand Journal of Psychiatry, 9 (1), 15-20.
- Kanezawa, A., Yamada, N., Sato, K., Inada, T., & Iwada, T. (1977). Cognizance of mental disorders among rural inhabitants. Psychiatria et Neurologia Japonica (Tokyo), 79 (4), 213-217.
- Kapur, R.L. (1975). Mental health care in rural India. British Journal of Psychiatry, 127, 286-293.
- Korte, C.D. (1983). The quality of life in rural and urban America. In A.W.Childs & G.B.Melton (Eds.) Rural Psychology New York : Plenum Press.
- Kreyes, W. (1968). Development of a rural community psychiatric service based in a hospital for mental diseases. Canadian Medical Association Journal, 98, 154-157.
- Krupinski, J., & Mackenzie, A. (1979). The health and social survey of the north-west region of Melbourne. Special Publication No.7, Mental Health Division, Health Commission of Victoria, Melbourne.
- Krupinski, J., Stoller, A., Baikie, A.G., & Graves, J.E. (1970). A community survey of the rural town of Heyfield, Victoria, Australia. Special Publication No.1, Mental Health Authority, Melbourne.

- Krush, T.P., Brown, B.E., & Nelle, J. (1965). Staff experimentation in community service division. Nebraska State Medical Journal, 50, 116-120.
- Lee, S.H., Gianturco, D.T., & Eisdorfer, C. (1974). Community mental health centre accessibility : A survey of the rural poor. Archives of General Psychiatry, 31, 335-339.
- LaFave, H.G., Stewart, A., & Grunberg, F. (1968). Community care of the mentally ill : Implementation of the Saskatchewan plan. Community Mental Health Journal, 4, 37-46.
- Leighton, D.C., Harding, J.S., Macklin, D.B., Hughes, C.C., & Leighton, A.H. (1963). Psychiatric findings of the Stirling County study. American Journal of Psychiatry, 119 (11), 1021-1026.
- Madaus, G.F., Stufflebeam, D.L., & Scriven, M.S. (1983). Program evaluation : A historical overview. In G.F.Madaus, M.S.Scriven, & D.L.Stufflebeam (Eds.), Evaluation models : Viewpoints on educational and human services evaluation. New York : Basic Books.
- Martinez-Brawley, E.E. (1980). Identifying and describing the context of rural in Social Work. Arete, 3, 21-31.
- Mazer, M. (1976). People and Predicaments. Cambridge, Mass.: Harvard University Press.
- Meck, D.S. & Leunes, A. (1977). Marital instability in a semirural setting : Personality considerations. Journal of Community Psychology, 5 (3), 278-281.
- Melton, G.B. (1983). Ruralness as a psychological construct. In A.W.Childs & G.B.Melton (Eds.), Rural psychology. New York : Plenum Press.
- Miles, J.E. (1980). A psychiatric outreach project to a rural community. Hospital and Community Psychiatry, 31 (12), 822-825.
- Milgram, S. (1970). The experience of living in cities. Science, 167, 1461-1468.



- Murphy, H.B.M., & Lemieux, M. (1967). Design and proposed evaluation of a rural mental health program for the province of Quebec. Montreal : McGill University.
- Murthy, R.S., Kala, R. & Wig, N.N. (1978). Mentally ill in a rural community : Some initial experiences in case identification and management. Indian Journal of Psychiatry, 20 (2), 143-147.
- Ordway, J.A. (1976). Transference in a fishbowl : A survey of rural psychoanalysis. Comprehensive Psychiatry, 17 (1), 209-216.
- Ozarin, L.D. (1978). Serving the underserved : Mental health service delivery in rural areas. Paper presented at the annual meeting of the American Psychiatric Association, Atlanta, Georgia.
- Ozarin, L.D. (1983). Mental health services in rural America. Hospital and Community Psychiatry, 34, 197-198.
- Patton, M.P. (1978). Utilization - focussed evaluation. London : Sage.
- Perlmutter, F.D. (1979). Consultation and education in rural community mental health centres. Community Mental Health Journal, 15 (1), 58-68.
- Perry, B.G. (1976). Transportation and communication as components of rural health care delivery. In E. Hassinger & L. Whiting (Eds.), Rural Health Services : Organisation, delivery and use. Ames, Iowa : Iowa State University Press.
- Phillip, A.E. (1983). Development and use of a record of psychologist - patient contacts. Health Bulletin, 41, 26-31.
- Prue, D.M., Keane, T.M., Cornell, J.E., & Foy, D.W. (1979). An analysis of distance variables that affect aftercare attendance. Community Mental Health Journal, 15, 149-154.
- Queensland Government (1982). Queensland (# ISSN Q157-3640). Brisbane : State Government Printing Office.

- Rappaport, J. (1977). Community psychology : Values, research and action. New York : Holt, Rinehart, and Winston.
- Reding, G.R., & Maguire, B. (1973). Non-segregated acute psychiatric admissions to general hospitals : Continuity of care within the community hospital. New England Journal of Medicine, 289, 4, 185-187.
- Reynolds, R.C., Banks, S.A., & Murphree, A.H. (1976). The health of a rural county : Perspectives and problems . Gainesville : University of Florida Press.
- Rich, C.L. (1980). Consultation psychiatry in a rural private practice. Psychosomatics, 21, 567-580.
- Riggs, R.T., & Kugel, L.F. (1976). Transition from urban to rural mental health practice. Social Casework, 27, 562-567.
- Roemer, M.I. (1976). Historical perspective of health services in rural America. In E.W.Hassinger & L.R.Whiting (Eds.), Rural health services : Organisation, delivery and use. Ames, Iowa : Iowa State University Press.
- Roy, C., Choudhuri, A., & Irvine, D. (1970). The prevalence of mental disorders among Saskatchewan Indians. Journal of Cross-Cultural Psychology, 1, 383-392.
- Royse, D., & Drude, K. (1982). Mental health needs assessment : Beware of false promises. Community Mental Health Journal, 8 (2), 97-106.
- Sallis, J., & Henggler, S.W. (1980). Needs assessment : A critical review. Administration in Mental Health. 7, 200-209.
- Schwab, J.S., Warheit, G.J., & Fennell, E.B. (1975). An epidemiologic assessment of needs and utilization of services. Evaluation, 2, 65-67.
- Schwab, J.J., Warheit, G.J., & Holzer C.E. (1974). Mental health : Rural-urban comparisons. Mental Health and Society, 1, 265-274.



- Scriven, M. (1967). The methodology of evaluation. In R.E.Stake (Ed.) Curriculum evaluation. Chicago : Rand McNally.
- Sheps, C.G., & Bachar, M. (1981). Rural areas and personal health services : Current strategies. American Journal of Public Health, 71, 71-82.
- Shires, J. (1977). A travelling day hospital : An experiment in rural community psychiatric care. Social Work Today, 8 (24), 16-18.
- Siegel, L.M., Attkisson, C.C., & Cohn, A.H. (1977). Mental health needs assessment : Strategies and techniques. In W.A.Hargreaves, C.C. Attkisson, L.M.Siegel, M.H.McIntyre & J.E. Sorensen (Eds.), Resource materials for community mental health program evaluation. Washington D.C. U.S.Government Printing Office.
- Smith, C.J. (1981). Hospital proximity and public acceptance of the mentally ill. Hospital and Community Psychiatry, 32, 178-180.
- Solomon, G. (1980). The rural human service delivery system : Entry issues. Journal of Rural Community Psychology, 1, 1-15.
- Solomon, G., Hiesberger, J. & Winer, J.L. (1981). Confidentiality issues in rural community mental health. Journal of Rural Community Psychology, 2, 17-31.
- Spielberger, C.D., Piacente, B.S., & Hobfoll, S.E. (1976). Program evaluation in community psychology. American Journal of Community Psychology, 4 (4), 393-404.
- Srole, L., Lagner, T.S., Michael, S.T., Opler, M.K. & Rennie, T.A.C. (1962). Mental health in the metropolis : The Midtown Manhattan study. New York : McGraw-Hill.
- Stai, R., & Atkinson, T.M. (1972). Decentralised outpatient services in a rural setting. In A.Beigel & A. Levenson (Eds.), The community mental health setting (p.216-221) New York : Basic Books.

- Stewart, R. (1979). The nature of needs assessment in community mental health. Community Mental Health Journal, 15 (4), 287-295.
- Strachan, R. (1976). Problems of adaption of some graziers facing a rural crisis in South-Western Queensland Implications for the extension worker. Unpublished doctoral dissertation, Hawkesbury Agricultural College.
- Stufflebeam, D.L. (1973). An introduction to the P.D.K. book : Educational evaluation and decision-making. In B.R.Worthen & J.R.Sanders (Eds.), Educational evaluation : Theory and practice. New York : Wadsworth.
- Stufflebeam, D.L. (1983). The CIPP model for program evaluation. In G.F.Madeus, M.S.Scriven, & D.L.Stufflebeam (Eds.), Evaluation models : Viewpoints on educational and humon services evaluation. New York : Basic Books.
- Stufflebeam, D.L., Foley, W.J., Gephart, W.J., Guba, E.G., Hammond, R., Merriman, H.O., & Provus, M.M. (1971). Educational evaluation and decision-making in education. Itasca, Illinois : Peacock.
- Taylor, E.N., & Vineberg, R. (1978). Evaluation of indirect services to schools. In C.C.Attkisson, W.A. Hargreaves, M.J.Horowitz, & J.E.Sorensen (Eds.), Evaluation of human service programs. New York : Academic Press.
- Thaler, M. (1950). The role of a psychologist in a travelling psychiatric clinic. Mental Hygiene, 34, 219-227.
- Thompson, G.L. (1979). Making the adjustment to isolated practice. In R.Walpole (Ed.), Rural Health : Proceedings of the Royal Australian College of General Practitioners Conference. Melbourne : Academic Press.
- Thomson, C.P., & Bell, N.W. (1969). Evaluation of a rural community mental health program. Archives of General Psychiatry, 20, 448-456.
- Thorndike, R.L., & Hagen, E. (1961). Measurement and evaluation in psychology and education. New York : Wiley.



- Tischler, G.L., Henisz, J.E., Myers, J.K. & Boswell, P.C. (1975). Utilization of mental health services : Patienthood and the prevalence of symptomatology in the community. Archives of General Psychiatry, 32 (4), 411-415.
- Torrey, E.F. (1970). Mental health services for American Indians and Eskimos. Community Mental Health Journal, 6, 455-463.
- Trepka, C. (1986). Attrition from an outpatient psychology clinic. British Journal of Medical Psychology, 59, 181-186.
- Tucker, G.J., Turner, J., & Chapman, R. (1981). Problems in attracting and retaining psychiatrists in rural areas. Hospital and Community Psychiatry, 32 (2), 118-120.
- Tyler, R.W. (1950) Basic principles of curriculum and instruction. Chicago : University Press.
- Walmsley, N.J. (1978). Influence of distance on hospital usage in rural New South Wales. Australian Journal of Social Issues, 13 (1), 72-81.
- Warheit, G.J., Bell, R.A., & Schwab, J.J. (1977). Needs assessment approaches : Concepts and methods (DHEW Publication No.77-472). Washington,D.C. : U.S.Government Printing Office.
- Weighill, V.E., Hodge, J., & Peck, D.F. (1983). Keeping appointments with clinical psychologists. British Journal of Clinical Psychology, 22, 143-144.
- Weiss, A.T. (1975). The consumer model of assessing community mental health needs. Evaluation, 2, 71-73.
- Weiss, C.H. (1977). Introduction. In C.H.Weiss (Ed.) Using social research in public policy making. Lexington, Mass. : Lexington Books.
- Widdows, R. (1974). Country v.city : A study of attitudes to country and city living in a small country town. Australian Journal of Social Issues, 9 (3), 196-208.

- Williams, W., & Evans, J.W. (1969). The politics of evaluation : The case of Head Start. Annals of the American Academy of Political and Social Services, 385. 118-132.
- Wolford, J.A., Hitchcock, J., Ellison, D.L., Sonis, A.C., & Smith, F. (1972). The effect on state hospital utilization of a Community Mental Health Mental Retardation centre. American Journal of Psychiatry, 129, 116-120.
- World Health Organization (1977). Manual of the international classification of diseases, injuries and causes of death (9th ed.) Geneva : Author.
- Worthen, B.R., & Sanders, J.R. (1973). Educational evaluation : Theory and practice. Worthington, Ohio : Charles A. Jones.
- Yahraes, H., Barron, E., Camp, M., & Fussell, H. (1976). The mental health of rural American : The rural programs of the National Institute of Mental Health (DHEW Publication No.76-349). Washington, D.C. : U.S.Government Printing Office.
- Youmans, E.G. (1977). The rural aged. Annals of the American Academy of Political and Social Science, 429, 81-90.

APPENDIX A  
NEEDS SURVEY SHEETS



SOUTH WEST QUEENSLAND AND DARLINGDOWNES REGIONAL PSYCHIATRIC SERVICE

It is proposed that a multi-disciplinary team from Baillie Henderson Hospital will establish a service regularly visiting Stanthorpe in the near future. In order to obtain information that will assist in the planning and development of an appropriate psychiatric service for your community, a "needs" survey has been designed. The aim of the survey is to gather information on the frequency and type of psychiatric and related problems being seen by you in the course of your work.

To complete the survey sheets, you will need to record:

1. The date of your first contact with the problem, from this point onwards. It need not be the first time you have seen the person with this problem, merely the first time during the period of the survey. If the person is seen on more than one occasion with the same problem, only the first contact is recorded. However, if on subsequent occasions there is a new or different problem, each should be recorded separately.
2. The problem as you see it. Please describe the problem briefly in your own words. Some examples may be: marital difficulties, anxiety, depression, sexual problems, bizarre behaviour, drinking or drug related problems, inability to cope at work or home, bereavement problems and so on (this is not an exhaustive list).
3. What action did you take? Describe what you did in handling the problem. If you were unable to take any action, merely state that.
4. Would you have contacted a visiting team, either personally or by referring the person, if such a service was available?
5. If "YES" to Q. 4 what would you expect a psychiatric team to do?

That is, what would you expect from them in relation to the problem - advice on treatment, medication prescribed, specific treatment, assessment, admission to hospital, etc.?

All information in the survey will be completely confidential. No names need to be used.

For examples on how to complete the survey sheet, please see attached form).

The Survey sheets will be collected by a team member in ten (10) weeks time, on 23rd May, 1983. If you experience any difficulty in completing the survey during that time, please contact me in Toowoomba, telephone number (076) 34 3333.

Thank you for your help and co-operation in this project.



(Brad Johnston),  
Psychologist.



PSYCHIATRIC SERVICE SURVEY SHEET - EXAMPLES

Problem	What Action did you take	Would you have contacted the Service	If so, what would you have expected.
Financial worries Lack of sleep Marital difficulties	Recommended person go to local doctor for sleeping pills and tried to counsel with regard to marriage problem	Yes	Assessment of problem. Medication prescribed. Marital Therapy
Hearing Voices. Refuses to leave house.	Admitted to Hospital	Yes	Admitted. Advice on Management. Follow-up when discharged.
Blackouts from heavy drinking. Unable to cope at work.	Gave medical certificate for time off work. Suggested person attend "Alcoholics Anonymous".	Yes	Counselling Medication Assessment of ability to cope at work.

PSYCHIATRIC SERVICE SURVEY SHEET

Date	Problem	What action did you take	Would you have contacted the Service	If so, what would expected

APPENDIX B  
INTAKE RECORD SHEET

MHS: 9

**STATISTICAL SUMMARY: NON-RESIDENTIAL**

U.R. No. \_\_\_\_\_ C

1. DATE OF FIRST CONTACT (day/month/year):	____/____/____		OFFICE																
2. HOSPITAL/CENTRE:	_____		<table border="1"> <tr> <td>N</td> <td></td> <td></td> </tr> <tr> <td>0</td> <td>0</td> <td></td> </tr> </table>		N			0	0										
N																			
0	0																		
3. NAME:	<table border="0"> <tr> <td>_____ Present Surname</td> <td>_____ Given Names</td> <td>_____ Surname at birth</td> </tr> </table>				_____ Present Surname	_____ Given Names	_____ Surname at birth												
_____ Present Surname	_____ Given Names	_____ Surname at birth																	
4. CURRENT HOME ADDRESS:	_____ _____ _____																		
5. SEX: Male 1 Female 2	6. DATE OF BIRTH (day/month/year) ____/____/____																		
7. PLACE OF BIRTH:	<table border="0"> <tr> <td>Australia 01</td> <td>Germany 04</td> <td>Malta 07</td> <td>Yugoslavia 10</td> <td>Other 13</td> </tr> <tr> <td>New Zealand 02</td> <td>Greece 05</td> <td>Netherlands 08</td> <td>Other Europe 11</td> <td>Unknown 14</td> </tr> <tr> <td>U.K. &amp; Eire 03</td> <td>Italy 06</td> <td>Poland 09</td> <td>Asia 12</td> <td></td> </tr> </table>				Australia 01	Germany 04	Malta 07	Yugoslavia 10	Other 13	New Zealand 02	Greece 05	Netherlands 08	Other Europe 11	Unknown 14	U.K. & Eire 03	Italy 06	Poland 09	Asia 12	
Australia 01	Germany 04	Malta 07	Yugoslavia 10	Other 13															
New Zealand 02	Greece 05	Netherlands 08	Other Europe 11	Unknown 14															
U.K. & Eire 03	Italy 06	Poland 09	Asia 12																
8. RACE/ETHNIC ORIGIN:	<table border="0"> <tr> <td>European 1</td> <td>Australian Aboriginal 2</td> <td>Asian 3</td> <td>Other 4</td> <td>Unknown 5</td> </tr> </table>				European 1	Australian Aboriginal 2	Asian 3	Other 4	Unknown 5										
European 1	Australian Aboriginal 2	Asian 3	Other 4	Unknown 5															
9. MARITAL STATUS:	<table border="0"> <tr> <td>Single (never married) 1</td> <td>Widowed 3</td> <td>Divorced 5</td> </tr> <tr> <td>Married (incl. de facto) 2</td> <td>Separated 4</td> <td>Unknown 6</td> </tr> </table>				Single (never married) 1	Widowed 3	Divorced 5	Married (incl. de facto) 2	Separated 4	Unknown 6									
Single (never married) 1	Widowed 3	Divorced 5																	
Married (incl. de facto) 2	Separated 4	Unknown 6																	
10. EMPLOYMENT AT FIRST CONTACT:	<table border="0"> <tr> <td>Employer/self employed 1</td> <td>Home duties 4</td> <td>Pensioner, retired 7</td> </tr> <tr> <td>Employed 2</td> <td>Student 5</td> <td>Other 8</td> </tr> <tr> <td>Unemployed 3</td> <td>Child not at school 6</td> <td>Unknown 9</td> </tr> </table>				Employer/self employed 1	Home duties 4	Pensioner, retired 7	Employed 2	Student 5	Other 8	Unemployed 3	Child not at school 6	Unknown 9						
Employer/self employed 1	Home duties 4	Pensioner, retired 7																	
Employed 2	Student 5	Other 8																	
Unemployed 3	Child not at school 6	Unknown 9																	
11. CURRENT OR LAST OCCUPATION:	_____ _____																		
12. HIGHEST EDUCATIONAL LEVEL REACHED:	<table border="0"> <tr> <td>None 1</td> <td>Primary 3</td> <td>Tertiary 5</td> <td>Other 7</td> </tr> <tr> <td>Special school 2</td> <td>Secondary 4</td> <td>Trade 6</td> <td>Unknown 8</td> </tr> </table>				None 1	Primary 3	Tertiary 5	Other 7	Special school 2	Secondary 4	Trade 6	Unknown 8							
None 1	Primary 3	Tertiary 5	Other 7																
Special school 2	Secondary 4	Trade 6	Unknown 8																
13. SOURCE OF REFERRAL:	<table border="0"> <tr> <td>Self, relatives, friends 01</td> <td rowspan="3">Hospital or agency (please specify): _____</td> </tr> <tr> <td>Private psychiatrist 02</td> </tr> <tr> <td>Other private medical practitioner 03</td> </tr> </table>				Self, relatives, friends 01	Hospital or agency (please specify): _____	Private psychiatrist 02	Other private medical practitioner 03											
Self, relatives, friends 01	Hospital or agency (please specify): _____																		
Private psychiatrist 02																			
Other private medical practitioner 03																			
14. PRINCIPAL DIAGNOSIS:	<table border="0"> <tr> <td>i) _____</td> </tr> <tr> <td>(i.e. condition which best accounts for this hospitalization/episode)</td> </tr> <tr> <td>OTHER CONDITIONS PRESENT (in order of importance)</td> </tr> <tr> <td>    { ii) _____</td> </tr> <tr> <td>    { iii) _____</td> </tr> <tr> <td>EXTERNAL CAUSE ("E" Code):</td> <td>_____</td> </tr> </table>				i) _____	(i.e. condition which best accounts for this hospitalization/episode)	OTHER CONDITIONS PRESENT (in order of importance)	{ ii) _____	{ iii) _____	EXTERNAL CAUSE ("E" Code):	_____								
i) _____																			
(i.e. condition which best accounts for this hospitalization/episode)																			
OTHER CONDITIONS PRESENT (in order of importance)																			
{ ii) _____																			
{ iii) _____																			
EXTERNAL CAUSE ("E" Code):	_____																		

SPECIAL USE ONLY: \_\_\_\_\_


SIGNATURE OF MEDICAL OFFICER/THERAPIST: \_\_\_\_\_ POSITION: \_\_\_\_\_ DATE: \_\_\_\_\_



APPENDIX C

DISCHARGE SUMMARY SHEET

DISCHARGE SUMMARY

1. NAME \_\_\_\_\_  

Surname
Given Names
2. DATE OF BIRTH \_\_\_\_\_
3. DATE OF COMMENCEMENT OF SERVICE \_\_\_\_\_
4. DATE OF TERMINATION OF SERVICE \_\_\_\_\_  
DURATION \_\_\_\_\_
5. NUMBER OF CONTACTS WITH PATIENT (Including telephone)  

1 _____	5 _____	21 - 30 _____
2 _____	6 - 9 _____	31 - 40 _____
3 _____	10 - 14 _____	Above 40 _____
4 _____	15 - 20 _____	
6. NUMBER OF CONTACTS WITH OTHER PERSONS RE PATIENT  

1 _____	5 _____	
2 _____	6 - 9 _____	
3 _____	10 - 15 _____	
4 _____	Above 15 _____	
7. TYPE OF SERVICE RENDERED (Tick all appropriate)  

Assessment and/or Advice on Treatment to Referrer _____	Family Therapy _____
Individual Therapy _____	Group Therapy _____
Marital Therapy _____	Medication _____
	Other (Specify) _____
8. STAFF IN DIRECT CONTACT WITH PATIENT (Tick all appropriate)  

Psychiatrist _____	Occupational Therapist _____
Medical Officer _____	Psychiatric Nurse _____
Psychologist _____	Other (Specify) _____
Social Worker _____	
9. PROPORTION OF TIME SPENT WITH EACH THERAPIST  

Psychiatrist _____%	Occupational Therapist _____%
Medical Officer _____%	Psychiatric Nurse _____%
Psychologist _____%	Other (Specify) _____
Social Worker _____%	
10. REASON FOR DISCHARGE  
Client withdrew → clinic notified \_\_\_\_\_  
Client withdrew → clinic not notified \_\_\_\_\_  
Terminated by clinic → problem resolved satisfactorily \_\_\_\_\_  
Terminated by clinic → problem not resolved satisfactorily \_\_\_\_\_
11. REFERRED TO OTHER SERVICE \_\_\_\_\_  
Specify \_\_\_\_\_
12. TREATMENT ON DISCHARGE \_\_\_\_\_

Signed: \_\_\_\_\_

## APPENDIX D

## CLIENT SATISFACTION QUESTIONNAIRE



South West Queensland and Darling Downs  
Regional Psychiatric Service  
Toowoomba, P.O. Box 405 4350

Ph. 34 3333

19

FILE No.

BJ:DM

PLEASE QUOTE

Dear \_\_\_\_\_,

We have seen you at our \_\_\_\_\_ clinic during the last year, and we are interested in knowing how you have been getting on since then. We would also like to find out your feelings about the service you received from our team. It is important to know your opinion so we can continue to improve the quality of our service.

Please be as honest as possible. A return addressed envelope is enclosed for your convenience.

Thank you for your help and we look forward to your reply.

1. What were the problems that you consulted us about?

\_\_\_\_\_  
\_\_\_\_\_

2. While you were seeing us, what effect did we have on your problems?  
(Please circle the number which best describes your opinion).

Were your problems:

1	2	3	4	5
much worse	worse	about the same	better	much better

3. Since you have stopped seeing us, what effect has there been on your problems? (Please circle the number which best describes your opinion).

Are they:

1	2	3	4	5
much worse	worse	about the same	better	much better

4. Were you satisfied with the treatment/service you received from our team?  
Yes No (Please circle).

5. Was there any way we could have improved our service to you?  
Yes No (Please circle).

If yes, how? \_\_\_\_\_

6. Have you sought help for the same problems since we last saw you?  
Yes No (Please circle).

If so, where? \_\_\_\_\_

7. Any general comments? \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Thank you again for your help,



APPENDIX E

CAREGIVER STRUCTURED INTERVIEW FORM



(2)

13. To what extent has the service affected your treatment methods?  
 1 2 3 4 5 6 7  
 Has it changed (1) Medication \_\_\_\_\_  
 (2) Counselling \_\_\_\_\_  
 (3) Referrals \_\_\_\_\_
14. What proportion of your clients have some form of psychiatric or related problems? \_\_\_\_\_
15. How disabling are their problems? \_\_\_\_\_
16. Is there anyone you expect to refer in the future. YES/NO  
 How many? \_\_\_\_\_
17. To what extent has your attitude toward mental illness changed in the last year? 1 2 3 4 5 6 7
18. To what extent has the service affected the attitudes of people in the community? 1 2 3 4 5 6 7
19. To what extent has it affected the community in general?  
 1 2 3 4 5 6 7
20. What do you see in the public's attitude toward the visiting team?  
 \_\_\_\_\_  
 \_\_\_\_\_
21. To what extent were your expectations of the service met?  
 Initially 1 2 3 4 5 6 7  
 Now 1 2 3 4 5 6 7
22. What do you see as the purpose of the service? \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
23. Is it a worthwhile idea? YES/NO
24. General Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

APPENDIX F

STATISTICAL ANALYSES



# DISCRIMINANT ANALYSIS

Nov 24 21:01 1986 dischargeout Page 1

DISCHARGE VARIABLES

x  
Town

group 1 188 subjects. dalby  
group 2 141 subjects. warwick  
group 3 82 subjects. stanthorpe  
group 4 85 subjects. roma  
group 5 22 subjects. goondiwindi  
group 6 21 subjects. charleville

pwinr	1	2	3	4
1	1.0000	.8421	.5089	-.0334
2	.8421	1.0000	.5442	-.0541
3	.5089	.5442	1.0000	.0337
4	-.0334	-.0541	.0337	1.0000

principal axis analysis (asymmetric matrix).

trace = .0665

100.00 pct. of trace was extracted by 4 roots.

discriminant weights for variables

diswt	1	2	3	4
1	-.0627	.0698	.0120	.0103
2	.3792	-.2362	.0079	.4104
3	.2288	.0652	.0745	-.8817
4	-.8944	-.9670	.9971	.2325

wilks lambda = .937

d.f. = 20. and 1759.

f-ratio = 1.754 p = .0204

*Overall significance*

root 1 61.27 pct. variance

chi-square = 21.320 d.f. = 8. p = .0070

root 2 23.77 pct. variance

chi-square = 8.371 d.f. = 8. p = .2124

root 3 14.46 pct. variance

chi-square = 5.110 d.f. = 4. p = .2760

root 4 .49 pct. variance

chi-square = .175 d.f. = 2. p = .9157 # units: ~~referred chambers~~

cent.	1	2	3	4
1	.8980	.8277	-.0049	.6426
2	.9738	.0732	-.4018	.6233
3	.8264	.0596	.5448	-.6360
4	.4849	.0775	.6123	-.6718
5	.8277	-.0049	.6426	-.7903
6	.0932	-.4018	.6233	-.6449

corel	1	2	3	4
1 # units	-.6449	.7069	.5469	.3463
2 # contacts	-.6867	.3248	.4845	.4337
3 # n.a. units	.6021	.3280	.5224	-.5070
4 referred chambers	-.3740	-.4854	.7800	-.0282

univariate f-tests. dfb = 5. dfw = 533. harmonic mean gp n = 46.35

variable	f-ratio	p	msw
1	1.4962	.1882	331.0637
2	2.4421	.0329	14.0156
3	2.0143	.0743	4.0658
4	1.6820	.1361	.1949

gmean	1	2	3	4	5
1	13.5638	10.3972	12.1220	12.1294	12.3182
2	3.6809	3.3333	3.1951	2.6235	3.2727
3	2.6862	2.4965	2.4024	2.2000	2.6364
4	.2926	.2340	.1951	.2624	.2727



- 1 = Dally  
 2 = Wasmuth  
 3 = Stenithorpe  
 4 = ...  
 5 = ...

DISCRIMINANT

DISCHARGE VAR

X

DIAGNOS

group 1 45 subjects. organic  
group 2 76 subjects. psychosis  
group 3 201 subjects. anxiety  
group 4 75 subjects. personality  
group 5 74 subjects. marital  
group 6 68 subjects. other

pwinnr	1	2	3	4
1	1.0000	.8397	.5074	-.0663
2	.8397	1.0000	.5457	-.0722
3	.5074	.5457	1.0000	.0180
4	-.0663	-.0722	.0180	1.0000

principal axis analysis (asymmetric matrix).

trace = .1277.

100.00 pct. of trace was extracted by 4 roots.

discriminant weights for variables

diswt	1	2	3	4
1	.0327	.0086	.0634	-.0529
2	-.0884	.1899	-.1497	.4541
3	-.0129	.2289	-.3818	-.4234
4	.9955	-.9547	-.9098	.7821

wilks lambda = .884

d.f. = 20. and 1759.

f-ratio = 3.333 p = .0000

*Signific.*

root 1 71.85 pct. variance

chi-square = 46.881 d.f. = 3. p = .0000

root 2 19.39 pct. variance

chi-square = 13.065 d.f. = 6. p = .0424

root 3 7.35 pct. variance

chi-square = 4.999 d.f. = 4. p = .2884

root 4 1.40 pct. variance

chi-square = .956 d.f. = 2. p = .6260 *ns*

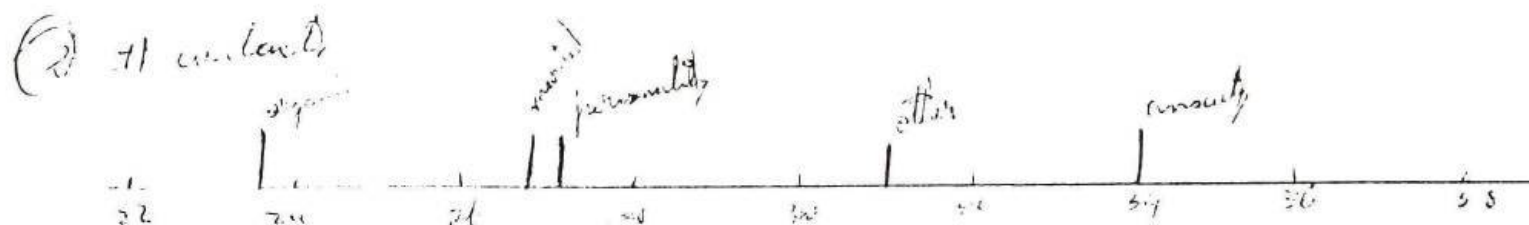
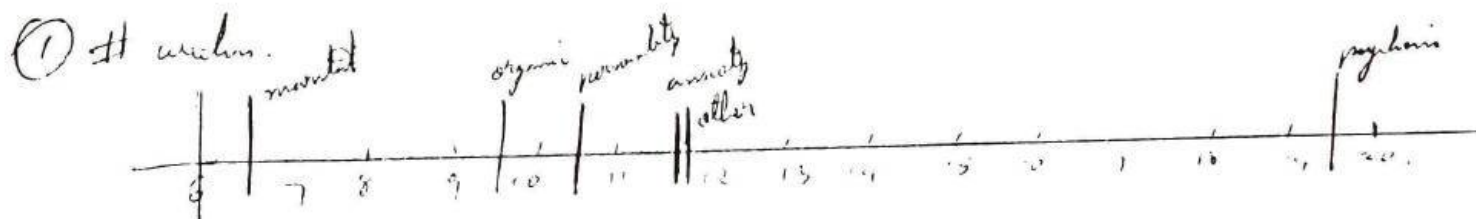
cent.	1	2	3	4
1	.4597	.1119	.9042	-.9525
2	.6088	.5047	.8966	-1.1214
3	.2262	1.1728	-.9197	-.0200
4	.3470	.8451	-.7974	-.0406
5	.1119	.9042	-.9525	.0893
6	.5047	.8966	-1.1214	-.0193

corel	1	2	3	4
1 <i># wch.</i>	-.0193	.8022	.3148	.0189
2 <i># controls</i>	.2241	.8953	.0049	.3850
3 <i># n.p. controls</i>	.1900	.7362	-.5275	-.3790
4 <i># referral children</i>	.7754	-.3659	-.4537	.2429

univariate f-tests. dfb = 5. dfw = 533. harmonic mean gp n = 73.25

variable	f-ratio	p	msw
1	4.2201	.0012	322.9263
2	2.6057	.0240	13.9946
3	2.0623	.0679	4.0640
4	6.2990	.0001	.1869

gmean	1	2	3	4	5	6
1	9.7556	19.5132	11.7413	10.6533	6.5946	11.8824
2	2.3778	4.3684	3.4279	2.7067	2.6892	3.1029
3	1.9778	2.8421	2.5871	2.1600	2.1486	2.6765
4	.3778	.3947	.1791	.2667	.1622	.4265





DISCRIMINANT ANA.

Dec 7 08:29 1986 dischargesoutcom Page 1

DISCHARGE

X

TREATMENT

group 1 44 subjects. left-~~no~~ contact  
group 2 134 subjects. left -no contact  
group 3 205 subjects. problem resolved  
group 4 156 subjects. problem not resolved

pwinnr	1	2	3	4
1	1.0000	.8414	.5139	.0285
2	.8414	1.0000	.5520	.0087
3	.5139	.5520	1.0000	.0313
4	.0285	.0087	.0313	1.0000

principal axis analysis (asymmetric matrix).

trace = .7391

100.00 pct. of trace was extracted by 3 roots.

discriminant weights for variables

diswt	1	2	3
1	.0020	.2189	.0554
2	.0093	-.9612	.3287
3	-.0132	-.1621	.4338
4	-.9999	-.0438	.8371

wilks lambda = .565

d.f. = 12. and 1408.

f-ratio = 28.295 p = .0000

*Overall significance*

root 1 93.89 pct. variance

chi-square = 281.990 d.f. = 6. p = .0000

root 2 4.15 pct. variance

chi-square = 16.177 d.f. = 4. p = .0033

root 3 1.95 pct. variance

chi-square = 7.670 d.f. = 2. p = .0214

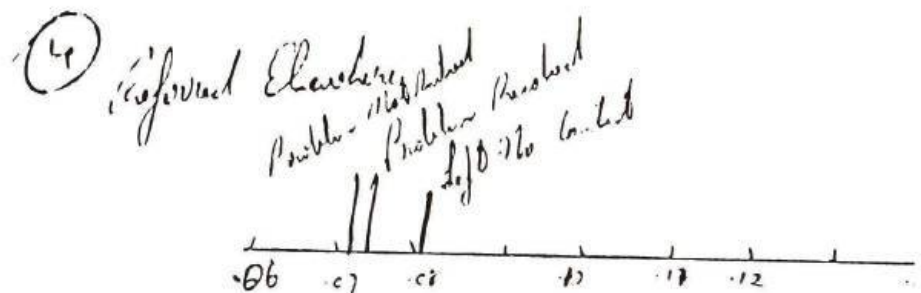
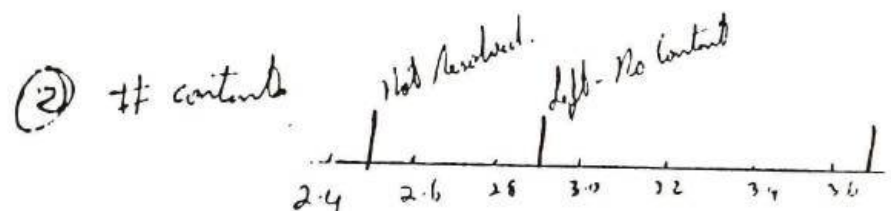
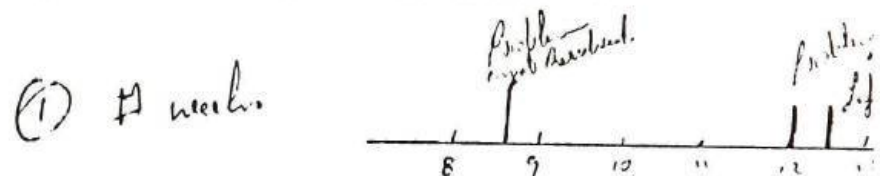
cent.	1	2	3
1	-.1402	-.3961	4.0046
2	-.0599	-.4460	2.6816
3	-.0486	-1.3326	3.0366
4	-.6965	-.9546	2.9747

core1		1	2	3
1 # weeks		.1522	.3546	.9018
2 # contacts		.1730	-.2038	.9244
3 # w/ no contact		-.0004	-.1287	.7582
4 informed elsewhere		-.9919	.0204	.1002

univariate f-tests. dfb = 3. dfw = 535. harmonic 1

variable	f-ratio	P	msw
1	4.5367	.0041	326.1582
2	4.6980	.0034	13.9165
3	1.5609	.1964	4.0914
4	120.4767	<.0000	.1177

gmean	1	2	3	4
1	19.9773	12.4403	12.0146	8.7
2	4.4545	2.9179	3.6927	2.5
3	2.9545	2.2239	2.5268	2.4
4	.1818	.0821	.0732	.7



MULTIPLE REGRESSION

1. SINGLE VARIABLE

X

DISTANCE FROM TOOWOON

intercorrelation analysis.

means	1	2	3	4	5
	11.8312	3.2301	2.4833	.2672	181.0
sigmas	1	2	3	4	5
	18.2201	3.7653	2.0240	.4425	129.6
r mat	1	2	3	4	5
1	1.0000	.8406	.5137	-.0386	-.0
2	.8406	1.0000	.5532	-.0625	-.1
3	.5137	.5532	1.0000	.0253	-.1
4	-.0386	-.0625	.0253	1.0000	.0
5	-.0679	<u>-.1404</u>	-.1209	.0743	1.0

model 1 criterion = 5

predictors = 1- 4

p = 2 rsq = .0197

p = 1 rsq = .0283

p = 4 rsq = .0323

p = 3 rsq = .0358

p = 2 rsq = .0368

r = .1917 rsq = .0368

5 iterations.

v'	beta	b
1	.1812	1.2893
2	-.2446	-3.4202
3	-.0793	-5.0763
4	.0690	20.2081

reg. const. = 180.1411

.2 adj. R<sup>2</sup>

f-test 1 discharges x distance / size

rsq full = .0368 model 1

rsq reduced = .0000 model 0

difference = .0368

dfn = 4. dfd = 534.

f-ratio = 5.093 p = .0008

# DISCRIMINANT ANALYSIS

Dec 7 09:30 1986 consumdiag Page 1

CLIENT SATISFACTION

K  
DIAGNOSIS

group 1 4 subjects. organic  
group 2 12 subjects. psychosis  
group 3 32 subjects. anxiety  
group 4 17 subjects. personality  
group 5 20 subjects. marital  
group 6 8 subjects. other

pwinr	1	2	3	4	5	6
1	1.0000	.0541	.0826	.1094	.0388	.1532
2	.0541	1.0000	.0551	-.1146	-.0771	-.0503
3	.0826	.0551	1.0000	.3644	-.3887	.2780
4	.1094	-.1146	.3644	1.0000	-.2190	.2165
5	.0388	-.0771	-.3887	-.2190	1.0000	-.3686
6	.1532	-.0503	.2780	.2165	-.3686	1.0000

principal axis analysis (asymmetric matrix).

trace = 1.9722

100.00 pct. of trace was extracted by 5 roots.

discriminant weights for variables

diswt	1	2	3	4	5
1	-.0034	.0408	-.6789	.1648	.3536
2	.8473	.0021	.0136	-.0145	-.0123
3	-.1080	.1626	.2490	.3610	.2405
4	.2003	-.1744	.0088	-.0774	.2956
5	.4629	-.6487	.6692	-.5528	.8170
6	.1267	.7216	.1702	-.7285	.2493

wilks lambda = .274

d.f. = 30. and 330.

f-ratio = 4.211 p = .0000

root 1 81.88 pct. variance

chi-square = 83.626 d.f. = 10. p = .0000

root 2 9.23 pct. variance

chi-square = 14.542 d.f. = 8. p = .0595

root 3 5.35 pct. variance

*Overall Significance*

*1 significant*



chi-square = 8.726 d.f. = 6. p = .1899

root 4 3.37 pct. variance

chi-square = 5.605 d.f. = 4. p = .2303

root 5 .17 pct. variance

chi-square = .286 d.f. = 2. p = .8670

cent.	1	2	3	4	5
1	2.0392	.8195	1.0520	.4765	2.2355
2	5.2717	.7228	.8655	.5120	2.3849
3	4.7743	.3800	.7002	.5903	2.3200
4	2.6497	.1957	.8238	.3903	2.3449
5	.4074	.5330	.7052	.5939	2.3494
6	3.6124	.7253	.4970	.3188	2.3216

corel	1	2	3	4	5
1 <i>Gen</i>	.1197	.1092	-.8005	.0965	.4505
2 <i>Effort at time</i>	.9937	.0517	.0037	.0566	-.0771
3 <i>Effort after</i>	.0524	.4829	.3616	.6081	.5132
4 <i>Intelligence</i>	.0357	-.1410	.0636	-.0310	.8072
5 <i>Changes</i>	-.0278	-.6757	.1698	-.3200	.0665
6 <i>Height 16y.</i>	-.0391	.8233	.0357	-.4598	.3258

univariate f-tests, dfb = 5, dfw = 87, harmonic mean gp n = 10.03

variable	f-ratio	p	msw
1	1.3719	.2418	.2351
2	27.2703	.0000	3.0516
3	1.3906	.2348	.6794
4	.1127	.9872	1.5672
5	1.5111	.1938	.0773
6	2.3492	.0469	.1897

② Effort at time

⑥ Height 16y.

gmean	1	2	3	4	5	6
1	.2500	.5833	.6875	.4706	.6000	.8750
2	2.0000	5.7500	5.1250	2.4706	.0000	3.7500
3	4.0000	4.0000	3.6250	3.2941	3.7000	3.3750
4	3.2500	3.5833	3.5313	3.6471	3.4500	3.3750
5	.0000	.0000	.0938	.2353	.0500	.0000
6	1.0000	.9167	.5938	.5882	.7500	1.0000

# DISCRIMINANT ANALYSIS

## CAREGIVER RATINGS

group 1 14 subjects. dalby  
group 2 20 subjects. warwick  
group 3 11 subjects. stanthorpe  
group 4 18 subjects. roma  
group 5 9 subjects. goondiwindi  
group 6 11 subjects. charleville

X  
TOWN

pwinn	1	2	3	4	5	6
1	1.0000	-.1935	.3558	.0821	-.0208	-.0636
2	-.1935	1.0000	-.4158	.4365	.3614	.0635
3	.3558	-.4158	1.0000	-.2478	-.4054	.0167
4	.0821	.4365	-.2478	1.0000	.4190	.2353
5	-.0208	.3614	-.4054	.4190	1.0000	.0907
6	-.0636	.0635	.0167	.2353	.0907	1.0000
7	.0195	.1937	-.1819	.2011	.2223	.1536
8	-.0521	.2343	-.0338	.3795	.2856	.2705

principal axis analysis (asymmetric matrix).

trace = .8877

100.00 pct. of trace was extracted by 5 roots.

discriminant weights for variables

diswt	1	2	3	4	5
1	.2858	.0391	.2327	-.0981	.0080
2	-.0483	.1820	.2093	.2813	-.1183
3	-.7016	-.2378	-.9124	.9239	-.7768
4	-.3629	-.7867	-.1059	-.1136	.4593
5	-.1499	.3870	-.0597	.1200	.1777
6	.2491	.2774	-.2105	-.0549	.1657
7	-.0288	.0796	.0335	-.0892	-.3151
8	.4547	-.2386	.0968	.1516	.1148

wilks lambda = .456

d.f. = 40. and 308.

f-ratio = 9.521 p = .0274

root 1 41.80 pct. variance

chi-square = 23.982 d.f. = 12. p = .0214

root 2 33.37 pct. variance

① Significant Overall.

② Significant Roots

1:

chi-square = 19.717 d.f. = 10. p = .0329

root 3 13.33 pct. variance

chi-square = 8.502 d.f. = 8. p = .3870

root 4 8.87 pct. variance

chi-square = 5.758 d.f. = 6. p = .5476

root 5 2.63 pct. variance

chi-square = 1.755 d.f. = 4. p = .7831

cent.	1	2	3	4	5
1	-.3111	-1.4771	.2123	.8182	2.2022
2	-.4921	-2.4462	.6178	.7417	2.0070
3	.2911	-2.8779	.0574	.5910	2.0884
4	.6675	-2.3975	.5253	.9325	2.1459
5	-.1142	-2.3372	.1053	1.0496	1.7990
6	-.6637	-3.0924	.2689	1.0030	2.2704

correl	1	2	3	4	5
1 Group	.2842	-.1446	.1984	-.1507	-.0913
2 Knowledge	-.1053	.1434	.5500	.5408	.2719
3 Used chimp?	.0387	-.3145	-.6075	.3392	-.4613
4 Rating	-.0500	-.4771	.1551	.1264	.6370
5 Effect Rx	-.1068	.4380	.2367	.2946	.5776
6 Pers. Attitude	.5834	.2777	-.5048	-.0187	.3639
7 Pop. Attitude	.4586	.0604	.2971	.0276	-.2308
8 Effect on Comm.	.7281	-.2885	.1347	.4389	.1891

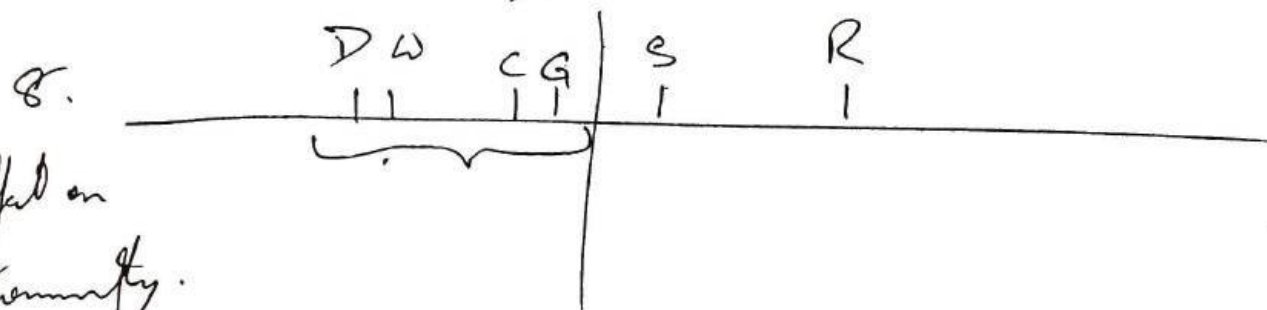
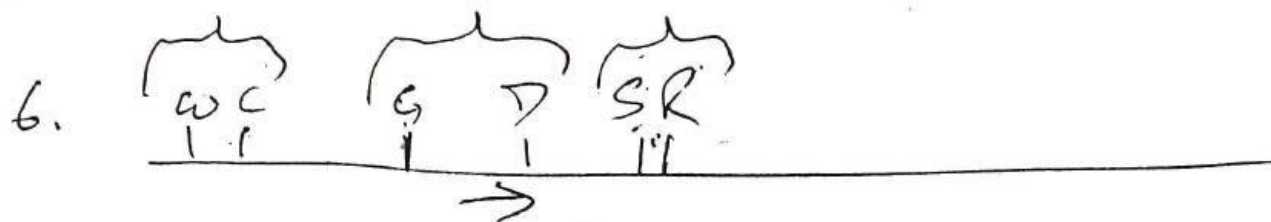
univariate f-tests. dfb = 5. dfw = 77. harmonic mean gp n = 12

variable	f-ratio	p	msw
1	.5190	.7633	1.9324
2	1.0546	.3926	1.9283
3	1.2542	.2917	.2188
4	1.1098	.3622	1.0619
5	1.2900	.2762	2.8810
6	2.5086	.0365	2.5971
7	1.1311	.3510	3.0931
8	3.2966	.0076	2.5426

gmean	1	2	3	4	5
1	2.7143	3.0500	3.2727	3.3889	2.8889

2	3.8571	3.9500	2.9091	4.0000	3.6667	3.9091
3	.2143	.2000	.4545	.2778	.5556	.4545
4	5.0000	5.4000	5.4545	5.4444	5.1111	5.9091
5	3.1429	2.3500	1.4545	2.4444	2.1111	2.1818
6	2.7857	1.5000	2.9091	2.9444	2.4444	1.6364
7	2.3571	2.5000	2.6364	3.3889	2.5556	1.9091
8	2.0000	2.1500	3.0000	3.9444	2.7778	2.5455

Personal attitude



effect on  
community.



MULTIPLE REGRESSION  
CARE GIVER RATINGS  
# PEOPLE / SERVICE

intercorrelation analysis.

means	1	2	3	4	5	6	7	8	9
	3.0482	3.7711	3.253	5.3855	2.3373	2.3373	2.6145	2.7470	670.4700
sigmas	1	2	3	4	5	6	7	8	9
	1.3613	1.3828	.4685	1.0277	1.7024	1.6739	1.7551	1.6322	266.4802
r mat	1	2	3	4	5	6	7	8	9
1	1.0000	-.1926	.3344	.0901	-.0434	-.0336	.0532	.0153	-.1336
2	-.1926	1.0000	-.4245	.4098	.3860	.0230	.1871	.2018	.0472
3	.3344	-.4245	1.0000	-.2104	-.4246	.0291	-.1845	-.0026	-.1307
4	.0901	.4098	-.2104	1.0000	.3526	.1695	.1759	.3609	-.1769
5	-.0434	.3860	-.4246	.3526	1.0000	.0869	.2048	.2136	.2037
6	-.0336	.0230	.0291	.1695	.0869	1.0000	.1960	.3194	-.0012
7	.0532	.1871	-.1845	.1759	.2048	.1960	1.0000	.5756	-.1103
8	.0153	.2018	-.0026	.3609	.2136	.3194	.5756	1.0000	-.3102
9	-.1336	.0472	-.1307	-.1769	.2037	-.0012	-.1103	-.3102	1.0000

model 1 criterion = 9

predictors = 1- 8

p = 8 rsq = .0963  
 p = 5 rsq = .1761  
 p = 4 rsq = .1971  
 p = 6 rsq = .2112  
 p = 1 rsq = .2205  
 p = 7 rsq = .2243  
 p = 2 rsq = .2258  
 p = 3 rsq = .2266  
 p = 6 rsq = .2269  
 p = 8 rsq = .2270  
 p = 4 rsq = .2272  
 p = 2 rsq = .2273  
 p = 1 rsq = .2274  
 p = 4 rsq = .2275  
 p = 7 rsq = .2275  
 p = 2 rsq = .2275

r = .4770 rsq = .2275 16 iterations

v	beta	b
1	-.0960	-18.7898
2	.0532	11.2096
3	.0289	16.4130
4	-.1846	-47.8569
5	.3209	50.2307
6	.1122	17.8665
7	.0636	9.6550
8	-.3962	-62.3844
reg. const.		924.8284

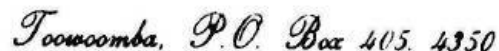
f-test 1 regcarexdistance

rsq full = .2275 model 1  
 rsq reduced = .0000 model 0

difference = .2275

dfn = 8. dfd = 74. f-ratio = 2.724 p = .0110





1.9

**PLEASE QUOTE**

Thank you again for your help,